the present application. In particular, paragraph [0052] states,

> **[0052]** HTML is a standardized language that describes the layout of content on a web page, and attributes of that content. This layout and attribute information is defined by sets of tags contained in HTML code corresponding to the page. The tags define various HTML layout and display information, including tables, paragraph boundaries, graphic image positions and bounding box sizes, typeface styles, sizes, and colors, borders, and other presentation attributes. A portion or all of a web page's text content may be contained in the parent HTML document corresponding to the URL. *In addition to basic HTML, web page documents may contain* ***XML (eXtensable markup language)*** *code, as well as scripting language code, such as javascript.* ***However, for simplicity, any documents containing web page content other than only graphic content that are discussed herein will be referred to as HTML documents***. (Emphasis added)

Applicants respectfully assert the use of the terminology "XML-based content" is definite, and one of ordinary skill in the art would be apprised of the scope of prior versions of claims 125 and 158. However, to advance prosecution, Applicants have amended these claims to refer to "XML code."

With respect to the indefinite rejection of independent claim 128, applicants have removed the "and/or" and "may be" terminology in a manner similar to that discussed above. Applicants respectfully assert that amended claim 128 is definite.

With respect to rejections of claims 135 and 135 as indefinite in view of the use of "substantially," applicants respectfully traverse these rejections based on similar reasons to those presented above concerning the use of the terminology "substantially in real-time."

With respect to the rejection of claim 136 as indefinite for using "higher" and "substantially," Applicants have amended claim 136 to remove use of the term "higher." Applicants respectfully assert the use of the terminology,

"the display is re-rendered such that the image is displayed substantially across

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the display"

is definite, for reasons similar to those discussed above concerning displaying Web pages or selected content (*i.e.*, images, columns, paragraphs) "substantially across the display."

With respect to claim 143, the Examiner asserts that the use of "it" and "may be" render the claim indefinite. Applicants have amended claim 143 to remove use of "it" and "may be." Applicants respectfully assert that amended claim 143 is definite.

With respect to the rejection of claim 144 for indefiniteness, Applicants have amended claim 144 to remove the use of "higher." Applicants respectfully assert the use of "the selected column is displayed substantially across the display" is not indefinite, for reasons similar to those discussed above. Applicants respectfully assert that amended claim 144 is definite.

With respect to claims 145-147, 151, and 156, the Examiner asserts that the use of "and/or", "higher", and "substantially" render these claims indefinite.

Applicants respectfully assert that claim 145, which depends from claim 144, is definite for the same reasons as claim 144.

Each of claims 146 and 147 has been amended to remove the term "higher". Applicants respectfully assert the use of the terminology "displayed substantially across the display" is definite for similar reasons to those presented above with respect to the use of the same terminology.

With respect to each of claims 151 and 156, Applicants respectfully assert the use of "substantially in real time" renders the claim definite, as argued above.

With respect to claims 174, 175, and 179, the Examiner asserts that the use of "its", "may be" and "substantially" render these claims indefinite. Applicants have amended claim 174 to remove reference to "its" and "may be." Applicants respectfully assert that the terminology "substantially retains the original page layout and attributes of the content defined by its original format when rendered" is definite based on similar

reasons argued above with respect to the definiteness of claim 71.

With respect to claims 175 and 176, applicants respectfully assert the terminology "substantially in real-time" is definite for reasons similar to those discussed above.

Traversal of the Rejection of Claims 71-92 and 94-179 under 35 U.S.C. §112, second paragraph

Claims 71-92, and 94-179 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These rejections were based on the assertion a single claim which claims both an apparatus and the method steps of *using* the apparatus is indefinite under 35 U.S.C. §112, second paragraph, citing Ex Parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter l990) and MPEP 21 73.05(p). Applicants respectfully traverse these rejections.

It is clear that each of claims 71-92 and 94-179 are directed to an apparatus (specifically, a wireless device or a mobile device, as applicable). In particular, each wireless or mobile device includes instructions (stored in some type of storage device or means) that enable the apparatus to perform certain operations upon execution of the instructions. Generally, the instructions comprise software and/or firmware[7] that is executed by a processor and/or other processing means/circuitry to facilitate various device operations. The claim form used for these claims is a conventional form for claiming such devices. The claim does not refer to method steps of *using* the apparatus, but rather recite operations *performed by* the apparatus via execution of software and/or firmware instructions.

Applicants respectfully assert that none of claims 71-92 and 94-179 claim both an apparatus and a method of ***using*** the apparatus. In addition, see the traversal of

[7] It is noted that a portion of the instructions may comprise programmed logic in some embodiments

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523.

II. Claims 9-14, are drawn to a networking including Client/Server feature, classified in class 709, subclass 203.

III. Claims 15-20, and 25-29, are drawn to a computer graphic processing included resolution conversion, classified in class 345, subclass 3.3.

Group III claims were elected for prosecution in the '097 application. Meanwhile, divisional applications including claims respectively directed to Groups I and II were filed on January 28, 2005 (11/045,757 (present application) to Group I; 11/045,649 to Group II).

When considered at a general level, the original claim groups were directed to:

I. (Claims 1-8, 21-24 and 30-33) Retrieval and translation of Web page content from original HTML form to scalable content that may be rendered by a client-side device (*e.g.*, thin client). Generally server-side operations but are performed by the client under original dependent claim 3.

II. (Claims 9-14) Routing client request through a proxy to return translated Web content to client; dependent claims further include generation of translated content.

III. (Claims 15-20, and 25-29) Client-side rendering operations, where the client receives the translated scalable content and renders such content. Client-side rendering operations support scaling, zooming, and panning of the Web page.

By way of preliminary amendments and other amendments, the original claims of the present application were replaced by the present claims, which generally comprise a combination of the original claim subject matter in Groups I and III.

First, Applicants respectfully assert that if the original claims restricted to Group I and Group III are patentably distinct, then claims including subject matter that is a combination of the subject matter of the original claims of Groups I and Group III

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(considered generally) should be patentably distinct from each of Groups I and III, since each of these claims will include, by definition, claim elements that are not included in either of the claims restricted to Groups I and III alone.

The pending claims in the present application are patentably distinct from the issued claims in the '099 patent. Each of the pending claims includes the element of retrieving HTML-based Web page content corresponding to the requested Web page – that is, ***they begin with Web page content in its original form as stored on (a) Web server(s) and made available for download to conventional desktop browsers***. None of the claims in the US 7,210,099 include similar elements. In each of the claims in the '099 patent[9], the client receives scalable content that has already been translated from its original HTML-based form by some external entity, such as a proxy server. Clearly, none of claims in the 7,210,099 patent would anticipate any of the pending claims, nor render any of the pending claims obvious. Accordingly, the provisional double-patenting rejection is improper and should be withdrawn.

Allowable Subject Matter

Claims 88-91, 118-121, 125-126, and 158-159 stand objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and rewritten to overcome 35 U.S.C. §101, and 35 U.S.C. §112, and Terminal Disclaimer. Applicants thank the Examiner for acknowledging each of these claims contains allowable subject matter, but choose to not rewrite any of the claims in independent form or file a Terminal Disclaimer at this time. However, Applicants reserve the right to do so during future prosecution, as applicable.

Traversal of the Rejection of Claims under 35 U.S.C. §103.

[9] It is noted that US 7,210,099 includes method claims, apparatus claims pertaining to an apparatus configured to perform the method, and Beauregard claims pertaining to software/firmware instructions for performing the method.

Claims 71-87, 92, 95-1 17, 122-123, 127-157, and 160-179 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Chithambaram*, in view of *Roy*. Applicants respectfully traverse these rejections, as argued below.

The Examiner is reminded that to successfully make a prima facie rejection under 35 USC § 103, the Examiner must show that Applicant's claimed subject matter would have been obvious to one of ordinary skill in the art pertinent to Applicant's claimed subject matter at the time it was made. See KSR International, Co. v. Teleflex, Inc., 550 U.S. ____(decided April 30, 2007). Some of the factors to consider in this analysis include the differences between the applied documents and Applicant's claimed subject matter, along with the level of skill associated with one of ordinary skill in the art pertinent to Applicant's claimed subject matter at the time it was made. See USPTO Memo entitled "Supreme Court decision on KSR Int'l. Co., v. Teleflex, Inc.," (May 3, 2007). One way in which an Examiner may establish a prima facie case of unpatentability under 35 USC § 103 would be to show that three basic criteria have been met. First, the Examiner should show that the applied documents, alone or in combination, disclose or suggest every element of Applicant's claimed subject matter. Second, the Examiner should show that there is a reasonable expectation of success from the proposed combination. Finally, the Examiner should show that there was some suggestion or motivation, either in the applied documents themselves or in the knowledge generally available to one of ordinary skill in the art pertinent to the claimed subject matter at the relevant time, to modify the document(s) or to combine document teachings. The motivation or suggestion to make the proposed combination and the reasonable expectation of success should be found in the prior art, and should not be based on Applicant's disclosure. See *In re* Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); See MPEP § 2142; 2143 - § 2143.03 (regarding decisions pertinent to each of these criteria). It is respectfully asserted that the Examiner has not met these standards.

Overview of Claimed Subject Matter

In order to clearly differentiate the claimed subject matter from the cited references, we begin with an overview of the claimed subject matter.

By way of example and not limitation, claim 71 recites,

71. A wireless device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display;

memory; and

storage means, in which a plurality of instructions are stored that when executed by the processing means enable the wireless device to perform operations including,

rendering a browser interface via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page;

retrieving the Web page via the wireless communication means, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered; and

scaling the scalable content to render the Web page on the display such that the original width of the Web page is rendered to fit substantially across the display.

Aspects of the foregoing claim elements will now be discussed with reference to the schematic diagram on the following page (FIG. 1). The schematic drawing shows

an exemplary infrastructure comprising well-known components for facilitating access to and delivery of Web pages. Web page content (*i.e.*, Web content) is served by servers that are accessed via the Internet, also commonly referred to as the World Wide Web (WWW). Accordingly, these servers are typically referred to as "Web" servers. More accurately, they are HTTP (Hypertext Transport Protocol) servers, as they serve content of various types using the HTTP protocol. FIG. 1 shows a pair of exemplary Web servers, including a New York Times (NYT) Web server and an Advertisement (ADV) Web server. It will be appreciated that literally millions of similar Web servers are connected to the Internet across the world, thus forming the World Wide Web.

To access WWW web servers, users use client devices that are communicatively coupled to the Internet through applicable network infrastructure. In the desktop environment, desktop clients, such as personal computers and workstations, are typically coupled to a Local Area Network (LAN) via an Ethernet link to a LAN host device. (It is noted that some desktop clients may wirelessly connect to a Wireless LAN (WLAN), in a manner similar to that discussed below for wireless clients.) The LAN, in turn is usually connected to the Internet via network infrastructure provided by an Internet Service Provider (ISP). Connection between the LAN and the ISP is typically provided by some type of Modem (*e.g.*, Cable or xDSL Modem) or dedicated hardware (for larger customers, such as businesses). (It is also noted that many individual users still connect to their ISP through a telephone modem.)

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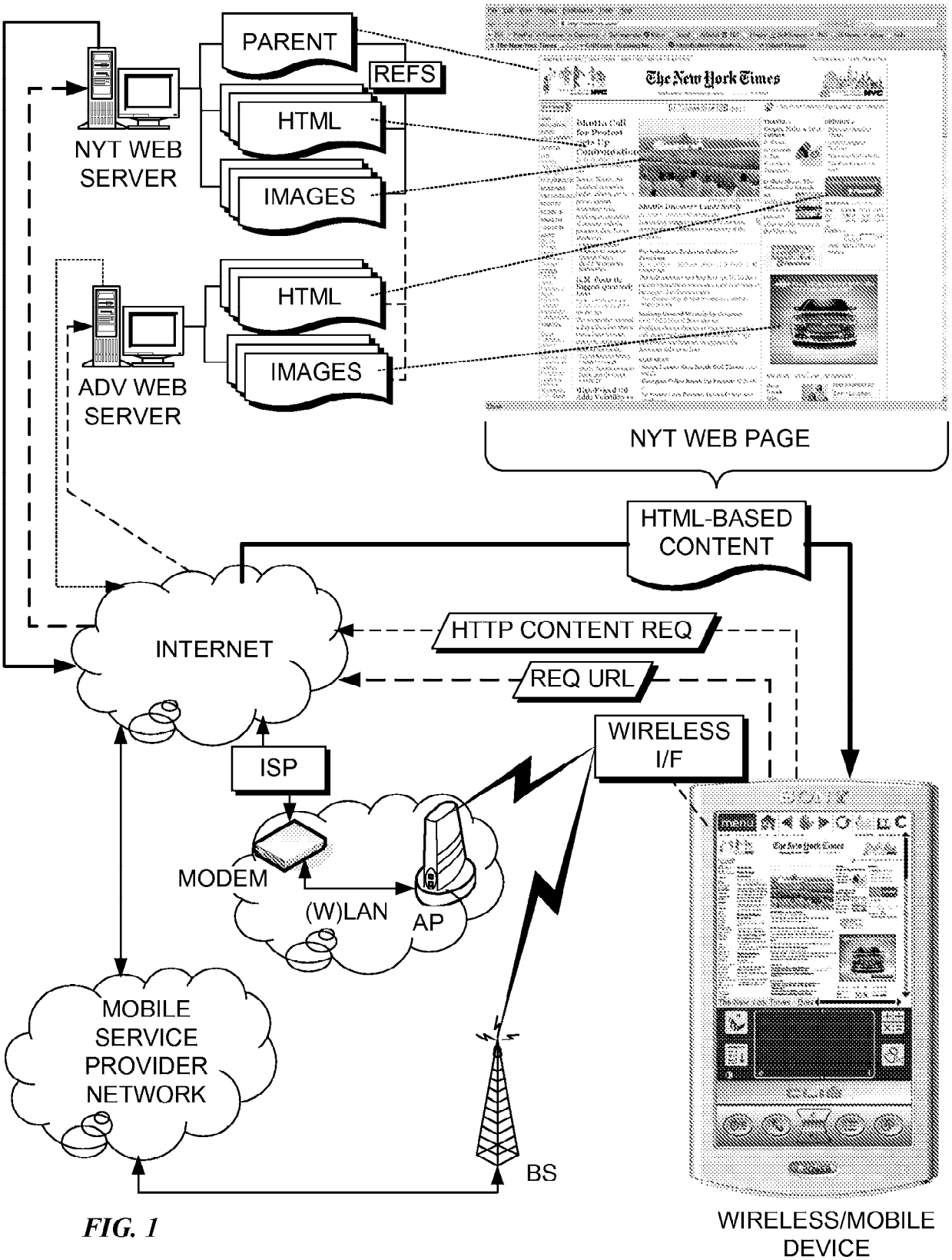

FIG. 1

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Wireless and mobile devices, including those devices covered by the claims herein, typically connect to the Internet in one of the manners illustrated in FIG. 1. (It is noted that the schemes illustrated in FIG. 1 are exemplary, and by no means limiting to the wireless connection schemes covered by the associated claim elements.) Under one scheme, Internet access for a mobile phone may be facilitated via the service provider for the mobile phone. Typically, the service provider operates a data network to support Internet access and other data access facilities. Such a data network is illustrated by a base station (BS) and Mobile Service Provider Network cloud in FIG. 1.

The mobile server provider network will typically be accessed via either mobile service provider infrastructure used for general mobile telecommunications (*e.g.*, the same infrastructure used for the "voice" and data network), or a dedicated network used for data services. Generally, there are two mobile telecommunications technology groupings. They are,

1. CDMA[10] One/CDMA 2000
2. GSM[11] /GPRS[12] /EDGE[13] /WCDMA[14].

The second technology grouping also supports UMTS[15] networks. Mobile telecommunications networks use licensed spectrum.

The wireless and mobile devices may also access the Internet via some form of unlicensed (spectrum) wireless connection, such as via a Wireless LAN (WLAN). Under this scheme, the device wirelessly communicates via an access point (AP), which in turn is coupled to a LAN or directly coupled to a modem or other hardware that

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[10] Code Division Multiple Access

[11] Global System for Mobile Communications

[12] Global Packet Radio Service

[13] Enhanced Date Rates for GSM Evolution

[14] Wideband CDMA

[15] Universal Mobile Telecommunication System

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supports a communication link with an ISP. Generally, WLAN technology includes IEEE 802.11a, b, g, or n (WiFi), IEEE 802.15.1 (Bluetooth) and IEEE 802.15.4 (ZigBee).

In addition to the schemes illustrated in FIG.1, the wireless and mobile devices may access the Internet via WiMAX (IEEE 802.16) infrastructure, which includes WiMAX base stations (not shown). Moreover, it is anticipated that other types of wireless communication technologies using licensed and unlicensed spectrum will be developed in the future.

As will be recognized by those skilled in the art, a given wireless or mobile device will provide components including antenna(s) and signal processing to facilitate wireless communication with one or more of the various types of base stations and access points described above. These components are collectively illustrated as a Wireless Interface (I/F) in FIG. 1. It is further noted that the particular wireless components and scheme employed is outside the scope of the present invention, as such will be known to those of skill in the wireless communication art, and is not to be limited by the exemplary wireless protocols discussed herein, as the scope of this claim element is intended to cover any means for communicating with a network via a wireless link or connection.

Now that the infrastructure of FIG. 1 has been described, we proceed with discussion of retrieving and processing the Web page content such that the Web page can be accessed via a wireless/mobile device. In the illustrated example, the process is initiated by a user desiring to access the New York Times (*i.e.*, and electronic version of the New York Times published to the Internet on a given day). This is facilitated by a browser running on the wireless/mobile device. The New York Times may be accessed via the Internet by downloading corresponding Web pages from the NYT Web server. More specifically, the New York Times home page may be accessed by entering the URL (Universal Resource Locator) www.nytimes.com.

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As discussed above and in further detail in the present specification, Web pages comprise HTML-based content which may be stored in one or more documents commonly referred to as HTML documents. In addition, Web pages may include dynamically-generated content. Each Web page has a corresponding main or "parent" HMTL document that includes HTML code defining the Web page content layout, at least at some level. The parent HTML document may reference other HTML documents, as well as other content (such as image content) that further define the layout of content contained in the referenced documents. This may proceed in a hierarchical or nested fashion.

To access the Web page, the browser initiates an HTTP connection with the Web server hosting the Web page, and begins downloading the parent HTML document. Depending on how the Web server and/or Web page is configured, additional content (*i.e.*, beyond that included in the parent HTML document) referenced by the parent HTML document, may be retrieved by the Web page host server and then downloaded to the requesting client device, or a portion of this content may be downloaded by the client device via a separate connection. Generally, content that is hosted by a Web server or Web site is assembled by the Web server and downloaded to the client device. On the other hand, externally-referenced content (that is, content that is not stored on the Web server or Web site), is often left to the client device (*i.e.*, the browser) to retrieve.

An example New York Times home page (dated November 7, 2007, 2:22PM ET), as rendered by the Mozilla Firefox browser running on a desktop or laptop computer, is shown at the upper right-hand portion of FIG. 1. The same Web page is shown rendered on a Sony Clié using a Softview™ browser at the lower right-hand portion of FIG. 1. Notably, the same HTML-based content defining the page layout and attributes of the Web page content is downloaded by each of the Mozilla Firefox and Softview™ browsers. Moreover, the same HTML-based content would be retrieved by

other desktop browsers, such as Microsoft Internet Explorer, Apple Safari, and Opera browsers, to render the New York Times home page.

As discussed above, the Parent HTML document typically includes HTML code to define the overall layout of the Web page and its content. For example, the HTML code will define whether the Web page includes frames, and, if so, where those frames are located on the rendered page. Various content displayed on the Web page may be stored in the Parent HTML document and/or one or more other HTML documents referenced by the Parent HTML document. If the content is to be rendered in a frame referenced by the Parent HTML document but whose content is not defined within the Parent HTML document, the actual reference to the HTML document storing the content may be in the document defined by the frame reference. For example, for illustrated purposes, the content in the column with the heading "Bhutto Call for Protest Sets Up Confrontation" is depicted to be stored in an HTML document that is hosted by the NYT Web server, but is separate from the Parent HTML document.

Likewise, image content may be stored separate from the Parent HTML document. This is typically done since images, which often contain a large amount of data due to the nature of image data, make require significant download time, especially over a slow connection. By putting image content in (a) separate document(s), the basic page layout and text content can be rendered much faster. Typically, HTML code defining the page layout location of an image on the page may be used to place an image "placeholder" or other indicia on the screen prior to rendering of the image.

As discussed above, various portions of the Web page content may be stored on Web servers that are external to the Web page host server. This is often the case with advertisement content. Rather than have the advertisement content stored locally on each Web server, the advertiser will use an advertisement host site to store and serve the advertisement content. For example, in FIG. 1, image data for rendering the "All

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New Chevy Malibu" advertisement is depicted as being stored in an image document on the Advertisement Web server.

Typically, externally referenced advertisement content is downloaded by the browser directly from the advertisement content host site, rather than from the Web page host site. The network location of the advertisement content host server is identified by parsing the retrieved HTML-based content, and an HTTP GET request is used to download the associated advertisement content from its host server.

Some Web pages may include "embedded" content hosted by an external site. For example, the New York Times Web page includes embedded content provided by Fidelity. Oftentimes, such embedded content may be dynamic in nature (that is, may change over time or differ depending on identification of the target user). Generally, embedded content may be retrieved by the browser from an external host site (*e.g.*, advertisement Web server depicted in FIG. 1[16]), or such content may be first retrieved by the Web page host site and served to the browser.

It is common terminology to refer to a browser "retrieving" or "downloading" a Web page. For example, upon entry of a new URL in the browser Web address box, the browser will download the Web page referenced by the URL. It is well understood that this doesn't imply that all of the content associated with the Web page must be retrieved or downloaded. Some of the content is typically used for search engine purposes, such as Metatag header information, or is otherwise not used for rendering purposes. In other cases, content may be referenced that is not supported by the requesting browser. For example, "Flash" content typically requires a Flash plug-in viewer (or built-in Flash support provided by some browsers); if the plug-in viewer is not loaded by the browser (or such support isn't built in), the Flash content cannot be displayed. This is also true for TIFF images on the USPTO Web site. Unless the

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[16] It is noted that it would be likely the Fidelity content would be hosted by its own server that would be separate from the advertisement server; however, for simplicity, the advertisement is used for illustrative purposes.

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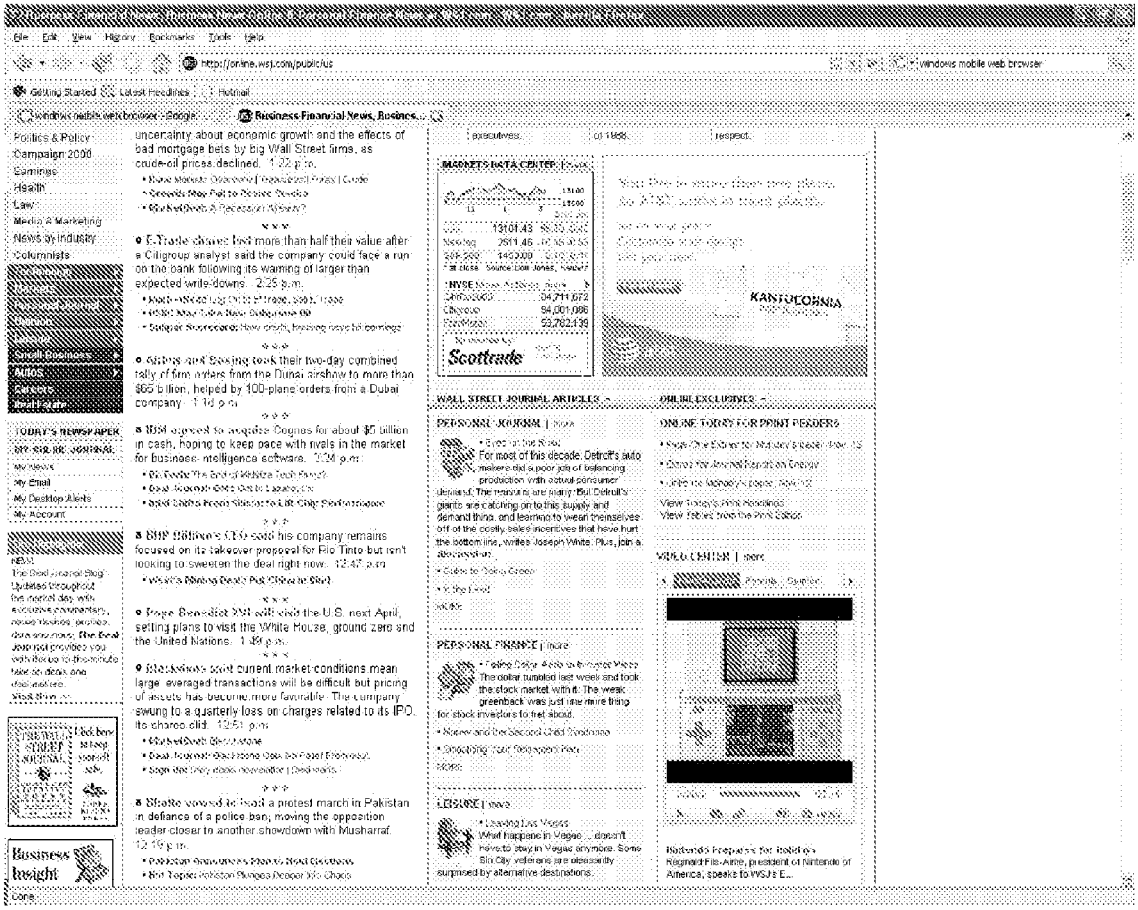
proper TIFF plug-in viewer is loaded, the TIFF images will not be displayed.

A similar situation exists with Active-X controls. In order to use the Active-X controls, the browser needs to provide support for Active-X controls. Since Active-X controls were developed by Microsoft, all recent versions of Microsoft Internet Explorer provided support for Active-X controls. Meanwhile, browsers from other vendors, such as Apple Safari, Mozilla Firefox, and Opera, do not support Active-X controls.

When a browser encounters content that is not supported "natively" by the browser, the browser will typically check to see if an appropriate plug-in is available. Depending on the browser and/or particular Web site, if an appropriate browser cannot be found, the browser or Web site may apprise the user of the situation and enable the user to download the plug-in. In other instances, the content is simply ignored. Thus, in some cases, the Web page may reference content that is never retrieved when the Web page is retrieved by the browser.

The three screen shots below respectively show the same Web page rendered on a Netscape Navigator 9 browser, a Mozilla Firefox 2.0 browser, and an Internet Explorer 7 (IE 7) browser. In this particular instance, certain features of the IE7 browser are disabled for security reasons. It is also missing some plug-ins. Each of these browsers is running on the Microsoft Windows XP operating system.



Mozilla Firefox 2.0 Browser

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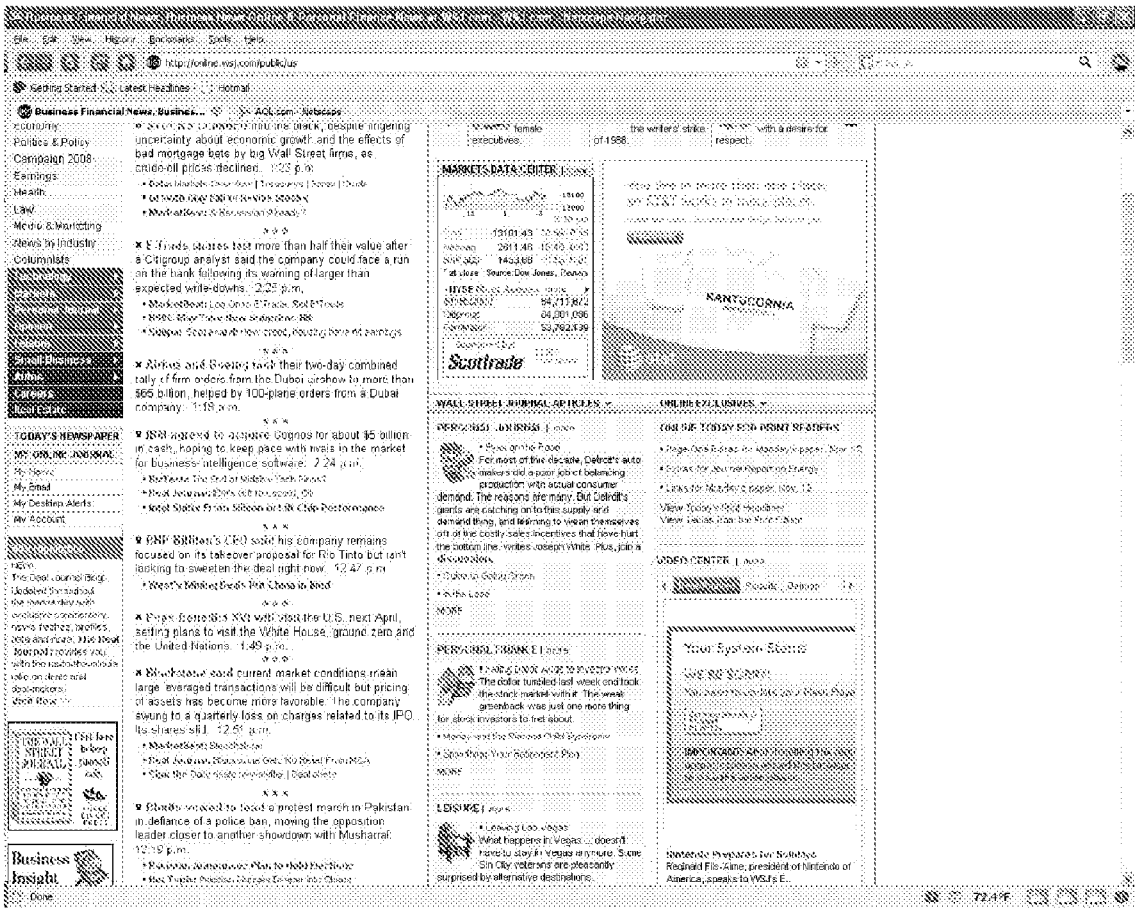

Netscape Navigator 9 Browser

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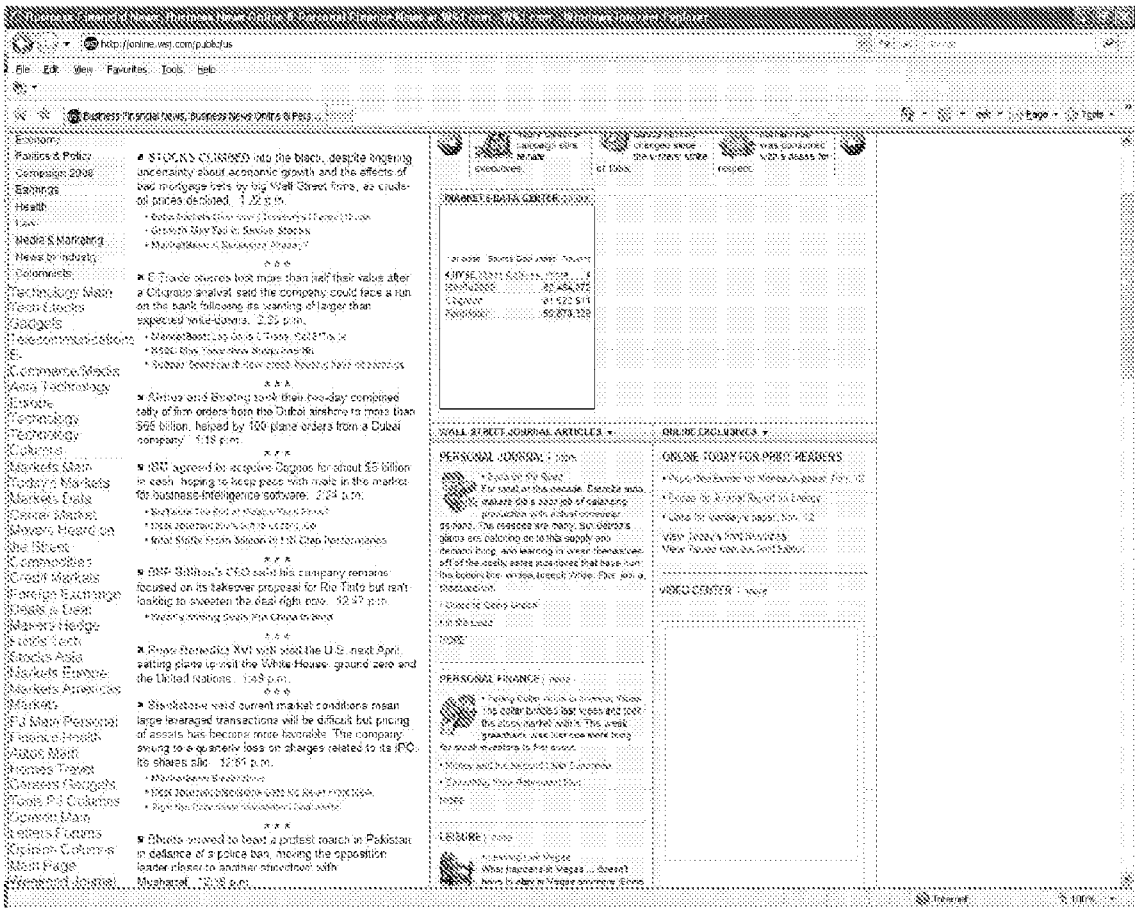

Microsoft Internet Explorer 7 Browser

It will be observed that the Web page is rendered substantially the same by the Netscape Navigator 9 and FireFox 2 browsers, while portions of the Web page are rendered in a different manner by the IE 7 browser (notably the left-hand column). The similarity between Netscape and Firefox is expected since they both use the same Mozilla core rendering code, while IE 7 uses Microsoft's rendering code. It is further noted that some Web pages are coded to account for different browser features. For example, some Web pages will have provisions for Active-X controls for pages to be viewed by Internet Explorer browsers, while possibly including provisions for alternate mechanisms when using other browsers.

This example Wall Street Journal Web page includes various embedded ***non-***

HTML content requiring support of one or more plug-ins[17] or otherwise built in support for rendering ***non-HTML*** content of a particular content type. In particular, the VIDEO CENTER object in the lower right-hand corner requires an Adobe (formerly Macromedia[18]) Flash viewer for rendering Flash content, which uses vector and raster graphics, a native scripting language called ActionScript and bidirectional streaming of video and audio.[19]

It is noted that there is a message in the VIDEO CENTER box in the Web page rendered by the Netscape Navigator 9 browser indicating that the browser needs to update its Flash player. In the case of the Firefox 2 browser, either the appropriate Flash player was found or an appropriate level of support for Flash content is built into the browser. In this case, the Flash .SWF file including data to render a video image of a Nintendo DS console is retrieved from a corresponding host server and rendered by the browser (if it has built-in support) or Flash player, as applicable. In the case of the Netscape Navigator 9 browser, the appropriate Flash player plug-in is not available; accordingly, the video image of the Nintendo DS console is not retrieved.

In the case of the particular IE 7 browser configuration used to obtain the IE7 screen shot, the Flash player is either missing or blocked. As a result, the aforementioned VIDEO CENTER image is missing (just an empty box is rendered, as defined by corresponding HTML). Moreover, the IE 7 browser did not render a message indicating the Flash player needed to be upgraded. In addition, the source for

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[17] As defined by Wikipedia, A **plugin** (**plug-in**, **addin**, **add-in**, **addon** or **add-on**) is a computer program that interacts with a host application (a web browser or an email client, for example) to provide a certain, usually very specific, function "on demand". Applications support plugins for many reasons. Some of the main reasons include: enabling third-party developers to create capabilities to extend an application, to support features yet unforeseen, reducing the size of an application, and separating source code from an application because of incompatible software licenses.

[18] Macromedia is now a division of Adobe Systems

[19] For more details on the Adobe Flash Player, see, e.g., http://en.wikipedia.org/wiki/Adobe_Flash_Player

the AT&T advertisement in the upper right-hand portion is blocked via a security setting, resulting in this portion of the page being rendered using the same background color as the frame it (would be) embedded in.

A point for discussing the foregoing is to make it clear that,

1. Even when rendering the same Web page source content (*i.e.*, the HTML code definition of the Web page), conventional Web browsers may not render the (non-scaled) Web page identically. Scaling Web pages may also result in alternation of the page layout. However, under aspects of embodiments of the invention (such as claimed in claim 71) the overall layout and appearance of the scaled Web pages will substantially retain the original page layout and attributes defined by the HTML code for the Web page.
2. Plug-ins may be required to render ***non-HTML content*** that is embedded within some web pages or used in a separate window launched from a web page. Notably, the plug-in content is not a Web page, but rather a specific type of content requiring a corresponding plug-in application to render the content.

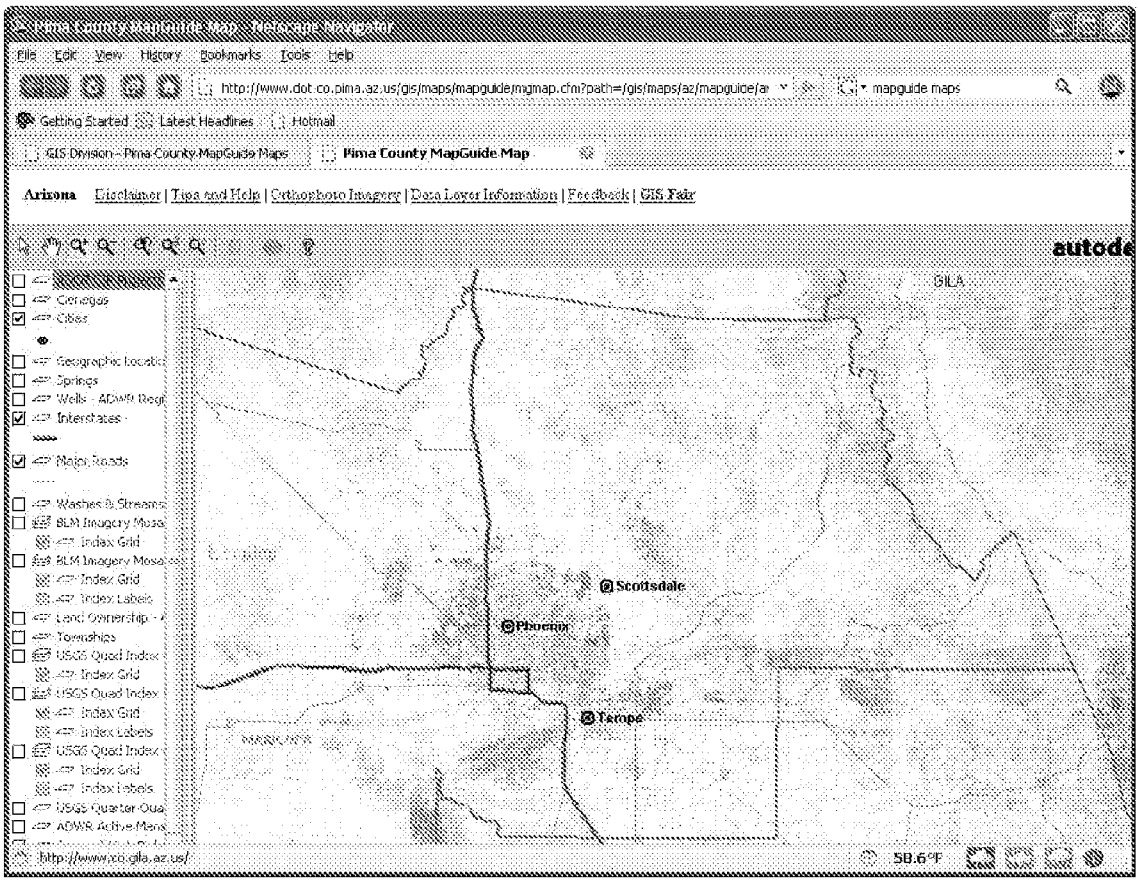
Discussion of US 6,642,925 (*Roy*)

Roy discloses an architecture for supporting viewing of maps through a combination of server-side components and a client-side map viewer. As will be described in further detail below, the *Roy* subject matter is employed by Autodesk's MapGuide GIS[20] architecture.

As stated in the Abstract,

> [*Roy*] discloses a method, apparatus, and article of manufacture for a computer implemented geographic information system that enables viewing a map picture that is generated from vector-based data. Map pictures can be generated with vector-based data. Map pictures created with vector-based data can be viewed. Additionally, map pictures are comprised of map objects, such as states and cities. Map objects can be

[20] Geographical Information System



Reduction of Netscape Navigator Browser Window

It is abundantly clear that the MapGuide architecture does not scale ***Web pages*** in any manner.

Returning to the claims, the Examiner asserts Claims 71-87, 92, 95-1 17, 122-123, 127-157, and 160-179 unpatentable under 35 U.S.C. §103(a) over *Chithambaram* in view of *Roy*.

By way of example and not limitation, under independent Claim 71, execution of the instructions performs operations including,

rendering a browser interface via which a user is enabled to request access to a ***Web page***, the ***Web page*** *comprising* ***HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page***;

retrieving the Web page via the wireless communication means, and ***translating*** at least a portion of the ***HTML-based Web content*** *from its original format into* ***scalable content*** *that supports a* ***scalable resolution-independent*** *display of the* ***Web page*** *that substantially retains the* ***original page layout and attributes*** *of the content defined by its original format when rendered*; and

scaling the ***scalable content*** to render the ***Web page*** on the display such that the original width of the ***Web page*** is rendered to fit substantially across the display. (Emphasis added)

Notably, the foregoing operations enables literally 100's of millions of Web pages to be rendered on devices independent of the resolution of the devices' display capability (e.g., screen resolution) in a manner that substantially retains the original page layout and attributes of the Web pages' content defined by the pages' HTML code. Thus, familiar Web pages appear substantially the same on the devices as they do on desktop browsers, only they are rendered at different scales. As a result, a full browser user experience is supported by a variety of different devices having various screen sizes and resolutions. Moreover, in the claimed inventions herein all of the recited operation elements are performed by the client/device – there are no server operations recited. Applicants respectfully assert that the teachings of *Chithambaram* and *Roy* do not teach or suggest such inventions, or anything close.

To support the rejection of independent claim 71, the Examiner states *Chithambaram* teaches,

> A wireless device, a display, a memory, and storage means, (See Chithambaram Column 3, Lines 65-67, discloses a personal digital-assistance (PDA).)
>
> Comprising: wireless communications means, to facilitate wireless communication with a network via which Web content may be accessed; a display; memory; and storage means, in which a plurality of instructions are stored that when executed by the processing means enable the wireless device to perform operations including, rendering a browser interface via which a user is enabled to request access to a Web page,

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(See Chithambaram Fig. 1 Column 5, Lines 25-30, discloses a hardware and software environment for the architecture uses a network/Internet 118 to connect technicians utilizing clients such as a thin client 102 (*e.g.* a PDA, WINCE, or PALM device) or a thick client 104 (*e.g.*, a computer system running a browser) to server computers 106.)

retrieving, via the wireless communication means, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent display of the content Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered; and, scalinq the scalable content to render the Web page on the display such that the original width of the Web page is rendered to fit substantially across the display.

(See Chithambaram Fig. 1 Column 5, Lines 25-30, discloses a hardware and software environment for the architecture uses a network/Internet 118 to connect technicians utilizing clients such as a thin client 102 (*e.g.* a PDA, WINCE, or PALM device) or a thick client 104 (*e.g.*, a computer system running a browser) to server computers 106.

Also see Chithambaram Column 4 Line 60 3 Column 5, Line 10, teaching the indexing raster (*i.e.* Raster maps provide multiple zoom levels with each zoom level, by scaling existing raster tiles) and vector based for interacting and highlighting with user objects.

Also see Chithambaram Column 6 Lines 55-65, teaching the SVG (Scalable Vector Graphics) allows vector graphic shapes (*e.g.*, paths consisting of straight lines and curves), images, and text. Graphical objects can be grouped, styled, transformed, and composite into previously rendered objects.

Also, see Chithambaram Column 8 Lines 30-65, teaching the offset for location of the object is obtained and the offset is encoded using bounding box to zoom in and filtering out the unwanted object for display on the PDA.)

In addition, Chithambaram does not expressly teach, but Rov teaches:

the Web page including associated HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page;

(See Roy Column 10, Lines 1-15, discloses an HTML document using specify the width and height of the map in pixels with the WIDTH=NNN and HEIGHT=NNN parameters. For example: <EMBED SRC="http://www.mapguide.comlmap pictures/usa.mwf' WIDTH=300HEIGHT=200>. This entry displays a map of the US in the

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current document. The map picture is 300x200 pixels in size.)

> It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the teaching Chithambaram, to include the Web page including associated HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page as taught by *Roy* to produce a predictable result, as evidence, using *Roy*'s specify the width and height of the map in pixels with the WIDTH=NNN and HEIGHT=NNN parameters with Chithambaram's SVG (Scalable Vector Graphics) and the offset for location of the object is obtained and the offset is encoded using bounding box of to zoom in and filtering out the unwanted object for display on the PDA (see Chithambaram Column *6* Lines 55-65, and also see Chithambaram Column 8 Lines 30-65).

The first operation performed by execution of the instructions in claim 71 comprises,

rendering a browser interface via which a user is enabled to request access to a ***Web page*** hosted by an Internet Web site, the ***Web page*** *comprising* ***HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page***; (Emphasis added)

From above, the Examiner asserts that *Chithambaram* teaches the elements of "rendering a browser interface via which a user is enabled to request access to a ***Web page*** hosted by an Internet Web site." As discussed above, *Chithambaram*'s thin client does not employ a Web browser. Thus, clearly *Chithambaram*'s thin client does not teach or fairly suggest this element. More accurately, *Chithambaram* teaches away from this element in view of the detailed explanation in the BACKGROUND OF THE INVENTION section to why PDA's did not have enough processing resources to support the scheme used by the MapGuide GIS at the filing date of the patent application (July 30, 2000), and thus the motivation for developing an alternative scheme that would work with thin clients. (It is noted that Applicants do not agree with *Chithambaram*'s assertion as a whole; however, that does not remove the fact that

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assertions to this effect are made by *Chithambaram*.)

The foregoing is immediately problematic, as the Examiner asserts that *Chithambaram*'s PDA teaches the structure of the claimed wireless device (*i.e.*, the processing means, wireless communications; display, memory, and storage means) while the same PDA clearly does not employ a browser (and thus cannot render a browser interface to enable a user to request access to a ***Web page*** hosted by an ***Internet Web site***). Moreover, *Chithambaram* teaches away from using a browser on a PDA.

Meanwhile, with respect to the element of "the ***Web page*** *comprising* ***HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page***, the Examiner asserts that such element is taught by *Roy* citing *Roy*'s disclosure of an

<EMBED SRC="http://www.mapguide.com/map pictures/usa.mwf' WIDTH=300HEIGHT=200>.

HTML element. However, this HTML element has nothing to do with defining an original width and height of a ***Web Page***, but rather merely defines the Width and Height to be used by an embedded MapGuide Viewer when the Web page is initially rendered.

With respect to the operation of,

retrieving the Web page via the wireless communication means, and ***translating*** at least a portion of the ***HTML-based Web content*** *from its original format into* ***scalable content*** *that supports a* ***scalable resolution-independent*** *display of the* ***Web page*** *that substantially retains the* ***original page layout and attributes*** *of the content defined by its original format when rendered*; (Emphasis Added)

the Examiner asserts that such is taught by *Chithambaram*. Applicants respectfully disagree.

It is clear that *Chithambaram*'s PDA does not retrieve Web pages. While the

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MapGuide thick client employs a Web browser, there is absolutely no translation of HTML-based Web content whatsoever for any purpose. Under the MapGuide thick client architecture, a home page is used to access the initial map. Upon loading such a home page, the HTML content is parsed in the conventional manner to render the home page. There is no translation, and no scalable content is produced by the client device. Meanwhile, the map data is not HTML-based at all, but rather is some proprietary format used by the MapGuide plug-in Viewer (the .mwf file format). Moreover, the map content is received already in its scalable form from the MapGuide ***Server***.

Finally, with respect to the last operation of,

scaling the ***scalable content*** to render the ***Web page*** on the display such that the original width of the ***Web page*** is rendered to fit substantially across the display (Emphasis added)

neither *Chithambaram* or *Roy* produce any scalable content via either the thick or thin ***client*** in the first place, or use scalable content to render a ***Web page*** to fit substantially across the display. Moreover, the scalable content used by *Chithambaram* and *Roy* is clearly not derived from translating HTML-based Web content on a wireless device.

It is very clear that the combination of *Chithambaram* and *Roy* do not teach or fairly suggest each and every element of independent claim 71, as required by *In re* Vaeck to support a prima facie obviouness rejection. Accordingly, the rejection of claim 71 over *Chithambaram* and *Roy* must be withdrawn for at least this reason. Moreover, there would be no expectation of success in combining the teachings of *Chithambaram* and *Roy*. Notably, a primary motivation (as discussed in the BACKGROUND OF THE INVENTION section) for *Chithambaram*'s MapGuide PDA implementaton was to overcome the shortcomings of the existing MapGuide GIS architecture as applied to thin clients such as PDAs.

In view of the above argument, claim 71 is in condition for allowance.

Additionally, each of claims 72-92 and 94-98, which depend either directly or indirectly from claim 71, is in condition for allowance for at least the same reasons as claim 71.

Independent claim 99 recites,

99. A mobile device, comprising:

a processor,

a wireless communications device, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

flash memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile device to perform operations including,

rendering a browser interface via which a user is enabled to request access to a Web page comprising ***HTML-based Web content*** defining an original page layout of content on the ***Web page***;

retrieving, via the wireless communications device, and ***processing the HTML-based Web content to produce scalable content***; and

employing at least one of the ***scalable content and data derived therefrom*** to,

render the ***Web page*** on the display; and

re-render the ***Web page*** in response to associated user inputs to enable the user to zoom in and out a display of the ***Web page***. (Emphasis added)

In support of the obviousness rejection of claim 99 over *Chithambaram* in view of *Roy*, the Examiner states "the rejection of claim 71 is fully incorporated, which cites above, and is similarly rejected under the same rational."

In response, the Applicants assert that independent claim 99 is patentable over

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Chithambaram and *Roy* for at least similar reasons argued above in support of the patentability of claim 71. As with claim 71, mobile device of claim 99 renders a browser interface via which a user is enabled to request access to a Web page. As discussed above, *Chithambaram*'s MapGuide PDA implementation does not use a browser, and in fact teaches away from using a browser. Moreover, neither *Chithambaram* nor *Roy* process HTML-based Web content to produce scalable content. Accordingly, since neither *Chithambaram* nor *Roy* process HTML-based Web content to produce scalable content, it is impossible for either *Chithambaram* or *Roy* to employ such scalable content or data derived from the scalable content to perform any operation.

As discussed above, there is no rendering of Web pages on *Chithambaram*'s PDA. Moreover, any zooming that is performed by *Roy* is done entirely by the MapGuide plug-in Viewer using non-HTML-based map data that is received in a scalable form from the MapGuide Server. First, the portion of the browser display occupied by the MapGuide viewer does not comprise a Web page. It is visual content that is rendered by an application (the plug-in viewer) that operates independent from the Web browser (with respect to rendering operations)[26]. Clearly, zooming natively scalable content rendered by a ***plug-in viewer*** does not teach or suggest zooming of a ***Web page***.

In view of the foregoing, it is clear the rejection of claim 99 over *Chithambaram* in view of *Roy* is improper, and should be withdrawn. Accordingly, claim 99 is in condition for allowance. Additionally, each of claims 100-127, which depend either directly or indirectly from claim 99, are in condition for allowance for at least the same reasons as claim 99.

With respect to Independent claim 128, the Examiner states, "the rejection of claims 71 and 99 are fully incorporated, which cite above, and are similarly rejected

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[26] It is noted that HTTP facilities of the Web browser is used to facilitate HTTP transfers between the plug-in and MapGuide Server.

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under the same rationale." Applicants respectfully traverse the rejection of claim 128. Independent claim 128 recites,

128. A mobile device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display, to facilitate user input and display rendered content; and

storage means, in which a plurality of instructions are stored,

wherein, upon execution of the instructions by the processing means, the mobile device is enabled to perform operations, including,

rendering a browser interface via which a user is enabled to request access to a ***Web page comprising HTML-based Web*** content defining an original page layout of content on the ***Web page***;

retrieving the ***Web page*** via the wireless communications means, and processing at least a portion of the ***HTML-based Web content*** to produce ***scalable content***; and

employing at least one of the ***scalable content*** and data derived therefrom to,

render the ***Web page*** on the display; and

re-render the ***Web page*** in response to associated user inputs made via the display to enable the user to zoom in and out a display of the ***Web page***. (Emphasis added)

Applicants assert that independent claim 128 is patentable over *Chithambaram* and *Roy* for at least similar reasons argued above in support of the patentability of claim 71 and 99. As with claim 71 and 99, the mobile device of claim 128 renders a browser interface via which a user is enabled to request access to a Web page. As

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discussed above, *Chithambaram*'s MapGuide PDA implementation does not use a browser, and in fact teaches away from using a browser. Moreover, neither *Chithambaram* nor *Roy* process HTML-based Web content on a client/device to produce scalable content. Accordingly, since neither *Chithambaram* nor *Roy* process HTML-based Web content to produce scalable content, it is impossible for either *Chithambaram* or *Roy* to employ such scalable content or data derived from the scalable content to perform any operation.

Moreover, there is no rendering of Web pages on *Chithambaram*'s PDA, and any zooming that is performed by *Roy* is done entirely by the MapGuide plug-in Viewer using Non-HTML-based map data that is received in a native scalable form from the MapGuide Server. Additionally, it is clear that neither *Chithambaram* nor *Roy* teach or suggest zooming of a ***Web page***.

In view of the foregoing, it is clear the rejection of claim 128 over *Chithambaram* in view of *Roy* is improper, and should be withdrawn. Accordingly, claim 128 is in condition for allowance. Additionally, each of claims 129-142, which depend either directly or indirectly from claim 128, are in condition for allowance for at least the same reasons as claim 128.

With respect to Independent claim 143, the Examiner states, "the rejection of claims 71 and 99 are fully incorporated, which cite above, and are similarly rejected under the same rationale." Applicants respectfully traverse the rejection of claim 143.

For reasons similar to those presented in support of the patentability of claims 71, 99, and 128, Applicants respectfully assert that claim 143 is patentable over *Chithambaram* in view of *Roy*. For example, claim 143 recites the following operations of, each of which is performed by the claimed ***device***,

> ***rendering*** a browser interface on the display via which a user is enabled to request access to a ***Web page comprising HTML-based Web content defining an original page layout of content on the Web page and defining***

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an original width and height of the Web page;

retrieving the ***Web page*** via the wireless communications interface;

rendering the ***Web page*** such that the ***Web page*** is rendered to fit substantially across the display; and

re-rendering the ***Web page*** in response to associated user inputs to enable the user to zoom in and out a display of the ***Web page***.

As discussed above, *Chithambaram*'s PDA implementation does no employ a browser or render Web pages. In addition, the rendering of a map by *Roy*'s ***plug-in MapGuide viewer*** clearly does not teach zooming in and out a display of a ***Web page***.

With respect to independent claim 174, the Examiner states,

> the rejection of claims 71 and 99 are fully incorporated, which cite above, and are similarly rejected under the same rationale. In addition, *Chithambaram* teaches:
>
> **translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered;**
>
> (See Chithambaram Fig. 1 Column 5, Lines 25-30, discloses a hardware and software environment for the architecture uses a network Internet 118 to connect technicians utilizing clients such as a thin client 102 (*e.g.* a PDA, WINCE, or PALM device) or a thick client 104 (*e.g.*, a computer system running a browser) to server computers 106.
>
> Also see Chithambaram Column 4 Line 60 *3* Column 5, Line 10, teaching the indexing raster (*i.e.* Raster maps provide multiple zoom levels with each zoom level, by scaling existing raster tiles) and vector based for interacting and highlighting with user objects.
>
> Also see Chithambaram Column 6 Lines 55-65, teaching the SVG (Scalable Vector Graphics) allows vector graphic shapes (*e.g.*, paths consisting of straight lines and curves), images, and text. Graphical objects can be grouped, styled, transformed, and composite into previously rendered objects.
>
> Also, see Chithambaram Column 8 Lines 30-65, teaching the offset for location of the object is obtained and the offset is encoded using bounding box to zoom in and filtering out the unwanted object for display on the PDA.)

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and employing the scalable content to render the Web page on the display using a first scale factor; and enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display;

(See Chithambaram Column 6 Lines 55-65, teaching the SVG (Scalable Vector Graphics) allows vector graphic shapes (*e.g.*, paths consisting of straight lines and curves), images, and text. Graphical objects can be grouped, styled, transformed, and composite into previously rendered objects.

Also, see Chithambaram Column 8 Lines 30-65, teaching the offset for location of the object is obtained and the offset is encoded using bounding box to zoom in and filtering out the unwanted object for display on the PDA.)

As discussed above, *Chithambaram*'s PDA does not employ a browser nor render Web pages. Moreover, clearly neither *Chithambaram* nor *Roy* translate HTML-based Web content into scalable content for any reason, much less translate HTML-based Web content into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered. Additionally, it is clear that since such scalable content is never produced, it would be impossible to employ the scalable content to render a Web page using a first scale factor or enable the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display.

In view of the foregoing, it is clear that the rejection of claim 174 is improper, and should be withdrawn. Accordingly, claim 174 is in condition for allowance. Additionally, each of claims 175-179, which either depend directly or indirectly from claim 174, are patentable for at least the same reasons as claim 174.

Additional Traversal of the Rejection of Selected Dependent Claims

As argued above, each of independent claim 71, 99, 128, 143 and 174 are in condition for allowance. By definition, this places each of dependent claims 72-92 and 94-98, 100-127, 129-142, 144-173, and 175-179 in condition for allowance for at least

wherein the corresponding user input comprises tapping on the paragraph via the display.

With further respect to claim 87, applicants respectfully assert that since *Chithambaram*'s PDA does not use a Web browser and thus does not display Web pages, and *Roy*'s Mapguide plug-in viewer does not render Web pages, and that neither *Chithambaram* nor *Roy's* produce scalable content from HTML-based Web content, *Chithambaram* or *Roy* cannot teach or suggest,

generating a vector-based display list associated with the scalable content; and

employing the display list to re-render the display at different scale factors to zoom the Web page.

Or, as similarly applied to claims 117 and 137,

building a display list via use of the scalable content and rendering display list content on a virtual display in the dynamic memory; and

scaling the display list content to re-render the display of the Web page.

Patentability of New Method and Beauregard Claims

New claims 180-364 have been added. These claims are method and Beauregard claims that are substantially analogous to the pending apparatus (device) claims. More particularly, the following table maps the new method and Beauregard claims to their analogous apparatus claim sets, wherein the independent claims of each claim set are shown.

Apparatus Ind. Claim	Method Ind. Claim	Beauregard Ind. Claim
71	180	271
99	211	303
128	Not Applicable	Not Applicable
143	244	337
174	265	359

scaling the scalable content to render the Web page on the display such that the original width of the Web page is rendered to fit substantially across the display,

wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content.

72. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

73. (Previously Presented) The wireless device of claim 72, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

74. (Previously Presented) The wireless device of claim 71, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

employing the additional scalable content to render the Web content associated with the hyperlink on the display.

75. (Currently Amended) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising:

parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects,

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[[and]] or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

76. (Currently Amended) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling the Web page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout and attributes of the Web page content are substantially preserved at each of the different resolutions.

77. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

78. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the Web page in response to a corresponding user input.

79. (Previously Presented) The wireless device of claim 78, wherein execution of the instructions performs further operations comprising enabling the display of the Web page to be panned substantially in real-time.

80. (Previously Presented) The wireless device of claim 71, wherein the page

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content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

93. (Cancelled)

94. (Previously Presented) The wireless device of claim 71, wherein at least a portion of the instructions comprise Java-based instructions.

95. (Previously Presented) The wireless device of claim 71, wherein the device comprises a mobile phone.

96. (Previously Presented) The wireless device of claim 71, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

97. (Previously Presented) The wireless device of claim 71, wherein the network comprises a mobile service provider network.

98. (Previously Presented) The wireless device of claim 71, wherein a portion of the scalable content comprises vector-based content.

99. (Currently Amended) A mobile device, comprising:

a processor,

a wireless communications device, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

flash memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile device to perform operations including,

rendering a browser interface via which a user is enabled to request

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access to a Web page comprising HTML-based Web content defining an original page layout and attributes of content on the Web page;

retrieving the Web page via the wireless communications device, and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content [[and]] or data derived therefrom to,

render the Web page on the display; and

re-render the Web page in response to associated user inputs to enable the user to zoom in and out a display of the Web page to enable the Web page to be viewed at various zoom levels while substantially preserving the original page layout and attributes of the Web page content at each zoom level.

100. (Previously Presented) The mobile device of claim 99, wherein the device comprises a mobile phone.

101. (Previously Presented) The mobile device of claim 99, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

102. (Previously Presented) The mobile device of claim 99, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

103. (Previously Presented) The mobile device of claim 102, wherein the user interface input enables the user to define a window of a current view of the Web page on which to zoom in on.

104. (Previously Presented) The mobile device of claim 99, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

performs further operations comprising scaling a scalable font to render the scalable text content.

123. (Previously Presented) The mobile device of claim 99, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

determining an applicable scale factor to display at least one of the width and height of the Web page substantially across a display area of the display; and

employing the scale factor to render the display area.

124. (Previously Presented) The mobile device of claim 99, wherein at least a portion of the instructions comprise Java-based instructions.

125. (Previously Presented) The mobile device of claim 99, wherein a portion of the HTML-based Web content comprises XML code.

126. (Previously Presented) The mobile device of claim 99, wherein a portion of the HTML-based Web content comprises cascaded style sheet data.

127. (Previously Presented) The mobile device of claim 99, wherein a portion of the scalable content comprises vector-based content.

128. (Currently Amended) A mobile device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display, to facilitate user input and display rendered content; and

storage means, in which a plurality of instructions are stored,

wherein, upon execution of the instructions by the processing means, the mobile device is enabled to perform operations, including,

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rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout and attributes of content on the Web page;

retrieving the Web page via the wireless communications means, and processing at least a portion of the HTML-based Web content to produce scalable content; and

employing at least one of the scalable content [[and]] or data derived therefrom to,

render the Web page on the display; and

re-render the Web page in response to associated user inputs made via the display to enable the user to zoom in and out a display of the Web page,

wherein the original page layout and attributes of the Web page content are substantially preserved regardless of a zoom level of the Web page.

129. (Previously Presented) The mobile device of claim 128, wherein the processing means includes a general-purpose processor.

130. (Previously Presented) The mobile device of claim 128, wherein the processing means includes a special-purpose processor.

131. (Previously Presented) The mobile device of claim 128, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

132. (Previously Presented) The mobile device of claim 131, wherein the user interface input enables the user to define a window of a current view of the Web page on which to zoom in on.

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140. (Previously Presented) The wireless device of claim 128, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

141. (Previously Presented) The wireless device of claim 128, wherein a portion of the scalable content comprises vector-based content.

142. (Previously Presented) The mobile device of claim 128, wherein the processing means includes logic circuitry programmed with a portion of the instructions.

143. (Currently Amended) A mobile device, comprising:

a processor,

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

non-volatile memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile device to perform operations including,

rendering a browser interface on the display via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout of content on the Web page and defining an original width and height of the Web page;

retrieving the Web page via the wireless communications interface;

rendering the Web page such that the Web page is rendered to fit substantially across the display; and

re-rendering the Web page in response to associated user inputs to enable the user to zoom in and out a display of the Web page to enable the Web page to be viewed at various zoom levels while substantially preserving the original page layout and attributes of the Web page content at each zoom level.

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supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when scaled and rendered;

employing the scalable content to render the Web page on the display using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display,

wherein the original page layout and attributes of the Web page content are substantially preserved under both the first and second scale factors.

175. (Previously Presented) The wireless device of claim 174, wherein the display is re-rendered substantially in real-time.

176. (Previously Presented) The wireless device of claim 174, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

177. (Previously Presented) The wireless device of claim 174, wherein the device comprises one of a notebook computer or laptop computer.

178. (Previously Presented) The wireless device of claim 174, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the Web page in response to a corresponding user input.

179. (Previously Presented) The wireless device of claim 178, wherein execution of the instructions performs further operations comprising enabling the display of the Web page to be panned substantially in real-time.

180. (Currently Amended) A method, comprising:

rendering a browser interface on a device via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an

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original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page;

retrieving the Web page via the device, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that the original width of the Web page is rendered to fit substantially across the display,

wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content.

181. (Previously Presented) The method of claim 180, further comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

182. (Previously Presented) The method of claim 181, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

183. (Previously Presented) The method of claim 180, wherein the Web page includes at least one hyperlink, the method further comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

employing the additional scalable content to render the Web content associated with the hyperlink on the display.

184. (Currently Amended) The method of claim 180, performs comprising:

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parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects, [[and]] or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

185. (Currently Amended) The method of claim 180, further comprising enabling the Web page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout and attributes of the Web page content are substantially preserved at each of the different resolutions.

186. (Previously Presented) The method of claim 180, further comprising returning the display of the Web page to a previous view in response to a corresponding user input.

187. (Previously Presented) The method of claim 180, further comprising enabling a user to pan a display of the Web page in response to a corresponding user input.

188. (Previously Presented) The method of claim 187, further comprising enabling the display of the Web page to be panned substantially in real-time.

189. (Previously Presented) The method of claim 180, wherein the page layout of

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font to render the scalable text content.

205. (Previously Presented) The method of claim 180, wherein the method is facilitated, at least in part, via execution of Java-based instructions.

206. (Previously Presented) The method of claim 180, wherein the device comprises a mobile phone.

207. (Previously Presented) The method of claim 180, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

208. (Previously Presented) The method of claim 180, further comprising accessing the Internet via a wireless connection to retrieve the Web page.

209. (Previously Presented) The method of claim 180, wherein a portion of the scalable content comprises vector-based content.

210. (Previously Presented) The method of claim 180, wherein the device comprises one of a notebook computer or laptop computer.

211. (Currently Amended) A method, comprising:

rendering a browser interface on a device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout and attributes of content on the Web page;

retrieving the Web page via the device, and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content [[and]] or data derived therefrom to,

render the Web page on a display of the device; and

re-render the Web page in response to associated user inputs to enable

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the user to zoom in and out a display of the Web page to enable the Web page to be viewed at various zoom levels while substantially preserving the original page layout and attributes of the Web page content at each zoom level.

212. (Previously Presented) The method of claim 211, wherein the device comprises a mobile phone.

213. (Previously Presented) The method of claim 211, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

214. (Previously Presented) The method of claim 211, further comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

215. (Previously Presented) The method of claim 214, wherein the user interface input enables the user to define a window of a current view of the Web page on which to zoom in on.

216. (Previously Presented) The method of claim 211, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

217. (Currently Amended) The method of claim 211, wherein the Web page includes at least one hyperlink, the method further comprising:

enabling the user to select the hyperlink via the display; and, in response thereto,

retrieving and processing HMTL-based Web content associated with the hyperlink to produce additional scalable content; and

employing at least one of the additional scalable content [[and]] or data derived therefrom to render the Web content associated with the hyperlink on the display.

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218. (Previously Presented) The method of claim 211, wherein at least a portion of the scalable content comprises scalable vector-based content.

219. (Previously Presented) The method of claim 211, further comprising returning the display of the Web page to a previous view in response to a corresponding user input made via the display.

220. (Previously Presented) The method of claim 211, further comprising enabling a user to pan a display of the Web page in response to a corresponding user input.

221. (Previously Presented) The method of claim 220, further comprising enabling the display of the Web page to be panned substantially in real-time.

222. (Currently Amended) The method of claim 211, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein said at least one of scalable content [[and]] or data derived therefrom is scaled to render a display having a different aspect ratio.

223. (Currently Amended) The method of claim 211, further comprising enabling a user to zoom on a column of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially across the display~~ enlarged.

224. (Previously Presented) The method of claim 223, wherein the corresponding user input comprises tapping on the column via the display.

225. (Previously Presented) The method of claim 223, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

226. (Currently Amended) The method of claim 211, wherein the Web content

241. (Previously Presented) The method of claim 211, wherein a portion of the HTML-based Web content comprises cascaded style sheet data.

242. (Previously Presented) The method of claim 211, wherein a portion of the scalable content comprises vector-based content.

243. (Previously Presented) The method of claim 211, wherein the device comprises one of a notebook computer or laptop computer.

244. (Currently Amended) A method, comprising:

rendering a browser interface on a display of a device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout of content on the Web page and defining an original width and height of the Web page;

retrieving the Web page via the device;

rendering the Web page via the device such that the Web page is rendered to fit substantially across the display; and

re-rendering the Web page in response to associated user inputs to the device to enable the user to zoom in and out a display of the Web page,

wherein the original page layout of the Web page content is substantially preserved regardless of a zoom level of the Web page.

245. (Currently Amended) The method of claim 244, further comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially across the display~~ enlarged.

246. (Previously Presented) The method of claim 245, wherein the corresponding user input comprises tapping on the column via the display.

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264. (Previously Presented) The method of claim 244, wherein the device comprises one of a notebook computer or laptop computer.

265. (Currently Amended) A method, comprising:

rendering a browser interface on a display via which a user of a device is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format including HTML code defining an original page layout and attributes of corresponding content on the Web page;

retrieving the Web page, via the device, and translating at least a portion of the HTML-based Web content into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered; and

employing the scalable content to render the Web page on the display using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display,

wherein the original page layout and attributes of the Web page content are substantially preserved under both the first and second scale factors.

266. (Previously Presented) The method of claim 265, wherein the display is re-rendered substantially in real-time.

267. (Previously Presented) The method of claim 265, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

268. (Previously Presented) The method of claim 265, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

269. (Previously Presented) The method of claim 265, further comprising enabling

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a user to pan a display of the Web page in response to a corresponding user input.

270. (Previously Presented) The method of claim 269, further comprising enabling the display of the Web page to be panned substantially in real-time.

271. (Currently Amended) A machine-readable medium having a plurality of instructions tangibly stored thereon, which when executed enable a device to perform operations comprising:

rendering a browser interface via which a user is enabled to request access to a Web page hosted by an Internet Web site, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout and attributes of content on the Web page;

retrieving the Web page and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that the original width of the Web page is rendered to fit substantially across the display,

wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content.

272. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

273. (Previously Presented) The machine-readable medium of claim 272, wherein

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the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

274. (Previously Presented) The machine-readable medium of claim 271, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

employing the additional scalable content to render the Web content associated with the hyperlink on the display.

275. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising:

parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects, [[and]] or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

276. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling the Web

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page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout and attributes of the Web page content are substantially preserved at each of the different resolutions.

277. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

278. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the Web page in response to a corresponding user input.

279. (Previously Presented) The machine-readable medium of claim 278, wherein execution of the instructions performs further operations comprising enabling the display of the Web page to be panned substantially in real-time.

280. (Previously Presented) The machine-readable medium of claim 271, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable content is scaled when rendered so as to produce a display having a different aspect ratio.

281. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially across the display~~ enlarged.

282. (Previously Presented) The machine-readable medium of claim 281, wherein the corresponding user input comprises tapping on the column via the display.

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at least a portion of the instructions comprise Java-based instructions.

297. (Previously Presented) The machine-readable medium of claim 271, wherein the device comprises a mobile phone.

298. (Previously Presented) The machine-readable medium of claim 271, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

299. (Previously Presented) The machine-readable medium of claim 271, wherein the Web page is accessed via a mobile service provider network.

300. (Previously Presented) The machine-readable medium of claim 271, wherein a portion of the scalable content comprises vector-based content.

301. (Previously Presented) The machine-readable medium of claim 271, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

302. (Previously Presented) The machine-readable medium of claim 271, wherein the instructions are embodied as a Web browser.

303. (Currently Amended) A machine-readable medium having a plurality of instructions tangibly stored thereon, which when executed enable a device to perform operations comprising:

rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout and attributes of content on the Web page;

retrieving the Web page and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content [[and]] or data derived therefrom

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to,

render the Web page on the display; and

re-render the Web page in response to associated user inputs to enable the user to zoom in and out a display of the Web page,

wherein the original page layout and attributes of the Web page content are substantially preserved regardless of a zoom level of the Web page

304. (Previously Presented) The machine-readable medium of claim 303, wherein the device comprises a mobile phone.

305. (Previously Presented) The machine-readable medium of claim 303, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

306. (Previously Presented) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

307. (Previously Presented) The machine-readable medium of claim 306, wherein the user interface input enables the user to define a window of a current view of the Web page on which to zoom in on.

308. (Previously Presented) The machine-readable medium of claim 303, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

309. (Previously Presented) The machine-readable medium of claim 303, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink via the display; and, in response thereto,

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the instructions are embodied as a Web browser.

337. (Currently Amended) A machine-readable medium having a plurality of instructions tangibly stored thereon, which when executed enable a wireless device to perform operations comprising:

rendering a browser interface on a display of the wireless device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout of content on the Web page and defining an original width and height of the Web page;

retrieving the Web page via the wireless device;

rendering the Web page such that the Web page is rendered to fit substantially across the display; and

re-rendering the Web page in response to associated user inputs to enable the user to zoom in and out a display of the Web page to enable the Web page to be viewed at various zoom levels while substantially preserving the original page layout and attributes of the Web page content at each zoom level.

338. (Currently Amended) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially across the display~~ enlarged.

339. (Previously Presented) The machine-readable medium of claim 338, wherein the corresponding user input comprises tapping on the column via the display.

340. (Previously Presented) The machine-readable medium of claim 338, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

the device comprises a mobile phone.

356. (Previously Presented) The machine-readable medium of claim 337, wherein the device comprises one of a Personal Digital Assistant (PDA) or handheld computer.

357. (Previously Presented) The machine-readable medium of claim 337, wherein the device comprises one of a notebook computer or laptop computer.

358. (Previously Presented) The machine-readable medium of claim 337, wherein the instructions are embodied as a Web browser.

359. (Currently Amended) A machine-readable medium having a plurality of instructions comprising a Web browser stored thereon, which when executed enable a device to perform operations comprising:

launching a Web browser including a browser interface via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format including HTML code defining an original page layout and attributes of corresponding content on the Web page;

retrieving, and translating at least a portion of the HTML-based Web content into scalable content that supports a scalable resolution-independent display of the Web page that substantially retains the original page layout and attributes of the content defined by its original format when rendered; and

employing the scalable content to render the Web page in the Web browser using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display of the Web page,

wherein the original page layout and attributes of the Web page content are substantially preserved under both the first and second scale factors.

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377. (New) The machine-readable medium of claim 281, wherein the display is re-rendered such that content corresponding to the selected column is displayed substantially across the display.

378. (New) The machine-readable medium of claim 284, wherein the display is re-rendered such that the image is displayed substantially across the display.

379. (New) The machine-readable medium of claim 286, wherein the display is re-rendered such that content corresponding to the selected paragraph is displayed substantially across the display.

380. (New) The machine-readable medium of claim 338, wherein the display is re-rendered such that content corresponding to the selected column is displayed substantially across the display.

381. (New) The machine-readable medium of claim 341, wherein the display is re-rendered such that the image is displayed substantially across the display.

382. (New) The machine-readable medium of claim 343, wherein the display is re-rendered such that content corresponding to the selected paragraph is displayed substantially across the display.

383. (New) The wireless device of claim 71, wherein the device enables a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

384. (New) The mobile device of claim 99, wherein the device enables a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page

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content.

385. (New) The mobile device of claim 143, wherein the device enables a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

386. (New) The method of claim 211, further comprising enabling a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

387. (New) The method of claim 265, further comprising enabling a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

388. (New) The machine-readable medium of claim 271, wherein execution of the instructions enables a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

389. (New) The machine-readable medium of claim 337, wherein execution of the instructions enables a user to view, zoom, and the HTML-based Web page content of pan substantially any Web page in a manner that substantially preserves the original layout of the Web page content.

390. (New) The machine-readable medium of claim 359, wherein execution of the instructions enables a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original

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layout and attributes of the Web page content.

391. (New) A hand-held wireless device, comprising:

a processor,

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

non-volatile memory, operatively coupled to the processor, in which software comprising a browser is stored, the browser comprising a plurality of instructions that when executed by the processor enable the device to perform operations including,

rendering a browser interface on the display via which a user is enabled to request access to a Web page including at least one image, at least one column, and a plurality of hyperlinks and having a width and height;

retrieving the Web page via the wireless communications interface;

rendering the Web page on the display such that at least one of the width and height of the Web page is fully displayed; and

enabling the user to,

zoom and pan a display of the Web page;

activate any viewable hyperlink while at any zoom level and pan position by tapping on the hyperlink, wherein in response to an activation of a hyperlink to an external reference, Web content associated with the external reference is retrieved and rendered on the display;

zoom in on an image of the Web page by tapping on the image via the display;

zoom in on a column of the Web page by tapping on the column via the display; and

zoom out to a previous view of the Web page.

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392. (New) The hand-held wireless device of claim 391, wherein the Web page comprises HTML-based Web page content defining an original page layout and attributes of the Web page content, and wherein the browser renders the Web page such that the original page layout and attributes of the Web page are substantially preserved at any zoom level.

393. (New) The hand-held wireless device of claim 392, wherein the user is enabled to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content.

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REMARKS

This Supplemental Amendment amends claims submitted in the Office Action response electronically filed December 9, 2007, and also corrects inadvertent typographical errors in the drawings. In the Supplemental Amendment, claims 71, 75, 76, 99, 128, 143, 174, 180, 184, 185, 211, 244, 265, 271, 275, 276, 303, 337, and 359 are amended to more clearly recite elements of their respective claimed inventions. New claims 365-393 have been added. Accordingly, claims 71-92 and 94-393 are now pending. No new matter has been added and all previous and new claims are supported by the original disclosure of 09/878,097 and other priority applications incorporated therein by reference (Application Serial Nos. 60/217,345, 60/211,019, and 09/828,511). Entry of this Supplemental Amendment is respectfully solicited.

Applicants respectfully assert that each of pending claims 71-92 and 94-393 is in condition for allowance.

Replacement of "and" with "or" in Claims 75, 99, 105, 110, 184, 211, 217, 222, 275, 303, 309, and 314

Under the current amendment, the word "and" has been replaced with the word "or" in each of claims 75, 99, 105, 110, 184, 211, 217, 222, 275, 303, 309, and 314. The purpose of the amendment does not relate to patentability, but rather is to comply with the decision in *SuperGuide Corporation v. DirecTV Enterprises, Inc.,* et al., 358 F.3d 870 (Fed. Cir. 2004). Accordingly, no *Festo* presumption of surrender should apply. In *SuperGuide*, terminology reciting "at least one of A, B, C *and* D (emphasis added) was construed to mean at least one of each of A, B, C, and D. Although this was contrary to years of patent prosecution practice, the outcome of *SuperGuide* is applicable law until and unless the claim construction gets overturned. As a result, each of claims 75, 99, 105, 110, 184, 211, 217, 222, 275, 303, 309, and 314 has been amended to comply with *SuperGuide*.

By way of example, claim 75 recites, in part (emphasis added),

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parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including ***at least one of text objects, graphic layout objects, or graphic image objects included in the Web page***

It will be understood that this recitation means the plurality of objects may include any of the following singular or combinations:

1. text objects
2. graphic layout objects
3. graphic image objects
4. a combination of text objects and graphic layout objects
5. a combination of text objects and graphic image objects
6. a combination of graphic layout objects and graphic image objects
7. a combination of text objects, graphic layout objects, and graphic image objects.

Similar amendments have been made to claims 184 and 275.

By way of another example, claim 99 recites, in part (emphasis added)

employing ***at least one of the scalable content or data derived therefrom*** to,

render the Web page on the display; and

re-render the Web page in response to associated user inputs to enable the user to zoom in and out a display of the Web page.

It will be understood that employing at least one of the scalable content or data derived therefrom means,

1. Employing the scalable content to perform the render and re-render operations.
2. Employing data derived from the scalable content to perform the render and re-render operations.
3. Employing a combination of the scalable content and data derived from

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the scalable content to perform the render and re-render operations.

Similar amendments have been made to claims 105, 110, 211, 217, 222, 303, 309, and 314.

Discussion of Terminology "Substantially any Web Page" in New Claims 383-390 and 393

Each of new claims 383-390 and 393 includes the element of [enables/enabling] "a user to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that substantially preserves the original layout and attributes of the Web page content." Although the HTML language definition is standardized (by the W3C HTML Working Group, *e.g.*, XHTML 1.0 (extension of the HTML 4.01 standard) and ISO/IEC 15445:2000), there is no mechanism to ensure Web pages themselves meet such standards. For example, Web pages may be "hand-coded," automatically coded by a Web page design application or the like, or employ a combination of the two. Both hand-coding and automatic coding may be prone to errors, although better Web page design applications typically provide built-in measures to assist the developer in developing appropriately formed HTML documents. Since the only checking when hand coding is performed by the person doing the hand coding (or potentially others connected with the publication of corresponding hand-coded Web pages), there is no mechanism to ensure the HTML code is appropriately formed (i.e., valid). As a result, there are Web pages that are accessible via the Internet that do not render properly or otherwise in a predictable manner (and sometimes not at all). For example, the tagged elements in an HTML document may not be nested properly, end tags may be missing, or the HTML Web page definition is otherwise improperly formed. As a result, such pages may not support (under the teachings of the present disclosure) enabling a user to view, zoom, and pan the HTML-based Web page content (of such pages) in a manner that that substantially preserves the original layout and attributes of the Web page content, since the original layout (HTML) code may be erroneous.

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In addition, some Web page design applications may (when automatically generating HTML code for rendering a page designed via the application) add additional code elements that may be problematic for some HTML rendering engines[1] (*i.e.*, the software used to lay out and render the Web page via processing the Web page's HTML document(s)), while function fine for other HTML rendering engines. This is particularly the case where a Web page design application generates Web pages targeted to a specific HTML rendering engine or browser. For example, Web page design applications developed and sold by Microsoft (*e.g.*, Frontpage, Web Expressions) will generally generate Web pages containing HTML code that is compatible with Microsoft Internet Explorer browsers, but may not be 100% compatible with other browsers.

It is further noted that some Web sites provide access to Web pages that are designed for specific consumers, *i.e.*, specific browsers or devices. For example, Web sites such as Yahoo.com serve separate versions of Web pages to computers using the Internet Explorer or Mozilla (rendering-engine) -based browsers (*e.g.*, Firefox and Netscape Navigator). In other words, in response to a request to access the Yahoo.com home page, a computer using an Internet Explorer browser will receive different Web page content than a computer using a Firefox or Netscape Navigator browser. Moreover, Web sites such as Yahoo.com may serve a separate version of a Web page to computers with browsers that are neither a version of Internet Explorer or a Mozilla-based browser, or an unsupported older version of either browser. In addition, many Web sites serve separate pages designed for Mobile devices – these pages are substantially different than their corresponding brethren that are designed for desktop browsers, often with a substantial reduction in page content. Thus, there will be some Web pages that will not render properly and/or will generate an error if

[1] Also commonly referred to as a layout engine.

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accessed by an unsupported browser.

Overall, the percentage of Web pages that are either browser/device-specific or contain invalid HTML (of significance) is rather small (when considered among the literally billions of estimated Web pages); however, as discussed above, such pages do exist. As a result, one of skill in the art would not expect any browser implementation to be able to render all Web pages as designed and/or coded.

Under the claimed inventions of claims 383-390 and 393, users are enabled to view, zoom, and pan the HTML-based Web page content of substantially any Web page in a manner that preserves the original layout and attributes of the Web page content. This capability will generally be dependent on the rendering engine compatibility with the Web page definition (as defined by the Web page's corresponding HTML). That is, this will generally depend on whether the rendering engine can render the original HTML-based Web page content appropriately at its original resolution or as originally defined by the Web page's HTML.[2]. Under the principles and teachings of the present disclosure, Web pages that can be rendered (by the applicable rendering engine) at the original resolution or as originally defined by the Web page's corresponding HTML are enabled to be viewed, zoomed, and panned in a manner that preserves the original layout and attributes of the Web page (as rendered at the original resolution).

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[2] That is the resolution the Web page was designed to be rendered at in accordance with the original HTML-based content defining the original layout and attributes of the Web page content. The original resolution for a predefined width corresponds to the width and height of a Web page (as to be rendered) in pixels. For example, many or today's Web pages are designed for a screen with a width resolution of 1024 pixels (or greater), while earlier Web pages were designed for screen widths of 800 (SVGA) or 640 (VGA) pixels. Meanwhile, some Web pages are coded (via corresponding HTML) to be centered or otherwise fit within the width of a current browser window. In this case, the width of the Web page is not predefined, but rather will be a function of the width of the current browser window. As a result, the rendering engine determines the applicable layout of the Web page in view of the current browser window width (which it obtains from the browser or operating system).

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In view of the foregoing, the terminology "substantially any Web page" has been included in claims 383-390 and 393 to identify that the claimed devices, methods, and instructions need not be able to enable a user to view, zoom, and pan the HTML-based Web page content of all Web pages while substantially preserving the original page layout and attributes of the Web page content, but rather this capability will generally be supported for the vast majority of Web pages (depending on the particular rendering engine that is employed).

Conclusion

In view of the amendments and the remarks above, Applicants respectfully submit that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues requiring adverse action in any of the claims now pending in the application, it is requested that the Examiner telephone R. Alan Burnett at (425) 417-4729 or (425) 562-0923 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

LAW OFFICE OF R. ALAN BURNETT, PS

Date: January 12, 2008 /S/ R. Alan Burnett

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compatible, meaning an application that would run on Windows 98 should run in a similar manner on Windows 2000.

As discussed above, the overall behavior of the "page zooming" feature was inconsistent and somewhat unpredictable. More specific details of the results of various example Web pages are contained in the auxiliary screenshot documents submitted herewith; however, the screenshot documents listed in the IDS are submitted without comment[1].

Of the auxiliary screenshot documents, the most demonstrable one includes screenshots illustrating the comparison between the www.arbidol.org original home page and its modified version. At 100% (that is, the rendering engine's interpretation of the Web page's content, layout, and attributes as defined by the page's HTML-based content), the original and modified versions of the page render substantially identically (at the browser window size used in for the comparison test). However, while page zooming of the original page functions fairly well (that is, it substantially preserves the page layout and attributes at most zoom levels), the page layout and attributes of the modified page are clearly not preserved at many zoom levels. This demonstrates that the rendered versions of the pages at zoom levels other than 100% are not based on the rendering engine's interpretation of the page at 100% - that is the interpretation of the page designer's intent of what the page is designed to render like. As a result, the scheme used for page zooming by Opera 3.60 will not produce scaled versions of the original page (as defined via the page's HTML-based content) in a manner that preserves the original page layout and attributes of the content for many Web pages.

In addition to reviewing the submitted screenshots, the Examiner is encouraged to install *Opera 3.60* and test it on his own. Applicant's note, it is

[1] There is textual information provided with these documents identifying various test parameters.

easier to observe how the page zooming feature behaves when zooming in person. For example, one can observe the page layout change using incremental zooming. Using the CTRL key in combination with the mouse scroll wheel (if available) is particularly useful for incremental zooming.

Respectfully submitted,

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Attachments:

Auxiliary screenshot documents:

3_60_Arbidol_Win_2K_and_98.pdf

3_60_Arbidol_Win_2K_Compare.pdf

3_60_Google_Win_2K_and_98.pdf

3_60_Newport_Win_2K_and_98.pdf

3_60_Opera_Company_Win_2K_and98.pdf

3_60_Win_2K_Opera_10-10-99.pdf

Web page printouts:

Die_inoffizielle_Opera-Fansite_Download-alte_Versionen.pdf

Opera_Browser_Releases_timeline.pdf

In the Claims

This listing of claims replaces all prior versions and listing of claims in the application. Amendments or cancellations of any claims are done without prejudice, waiver and/or disclaimer. Applicants reserve the right to claim the subject matter of any amendment and/or cancellation in a continuing application.

1-70. (Cancelled)

71. (Currently Amended) A wireless device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display;

memory; and

storage means, in which a plurality of instructions are stored that when executed by the processing means enable the wireless device to perform operations including,

rendering a browser interface via which a user is enabled to request access to an original Web page, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout ~~and attributes~~, functionality, and design of content on the Web page;

in response to a user request to access the Web page,

retrieving the Web page via the wireless communication means, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~

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design of the content defined by its original format when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that ~~the original~~ a width of the Web page is rendered to fit ~~substantially~~ across the display~~,~~

~~wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content~~.

72. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

73. (Currently Amended) The wireless device of claim 72, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

74. (Previously Presented) The wireless device of claim 71, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

employing the additional scalable content to render the Web content associated with the hyperlink on the display.

75. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising:

parsing markup language code to determine the original page layout of display

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content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects, or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

76. (Currently Amended) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling the Web page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout ~~and attributes,~~ functionality, and design of the Web page content are ~~substantially~~ preserved at each of the different resolutions.

77. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

78. (Currently Amended) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input.

79. (Currently Amended) The wireless device of claim 78, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

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80. (Currently Amended) The wireless device of claim 71, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable content is scaled when rendered so as to produce a display of the Web page having a different aspect ratio.

81. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

82. (Previously Presented) The wireless device of claim 81, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

83. (Previously Presented) The wireless device of claim 71, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

84. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

85. (Previously Presented) The wireless device of claim 84, wherein the content of the paragraph is reformatted to fit characteristics of the display when the display is

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re-rendered.

86. (Previously Presented) The wireless device of claim 71, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

87. (Previously Presented) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising:

generating a vector-based display list associated with the scalable content; and

employing the display list to re-render the display at different scale factors to zoom the Web page.

88. (Currently Amended) The wireless device of claim 71, wherein execution of the instructions performs further operations comprising:

parsing markup language code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

89. (Previously Presented) The wireless device of claim 88, wherein execution of

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the instructions performs further operations comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

90. (Previously Presented) The wireless device of claim 89, wherein execution of the instructions performs further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display in memory.

91. (Currently Amended) The wireless device of claim 90, wherein execution of the instructions performs further operations comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned view corresponding to a rendered display of the Web page desired by a user; and

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

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92. (Previously Presented) The wireless device of claim 71, wherein the scalable content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

93. (Cancelled)

94. (Previously Presented) The wireless device of claim 71, wherein at least a portion of the instructions comprise Java-based instructions.

95. (Previously Presented) The wireless device of claim 71, wherein the device comprises a mobile phone.

96. (Previously Presented) The wireless device of claim 71, wherein the device comprises one of a Personal Digital Assistant (PDA) or hand-held computer.

97. (Previously Presented) The wireless device of claim 71, wherein the network comprises a mobile service provider network.

98. (Previously Presented) The wireless device of claim 71, wherein a portion of the scalable content comprises vector-based content.

99. (Currently Amended) A mobile hand-held device, comprising:

a processor,

a wireless communications device, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

flash memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile hand-held device to perform operations including,

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rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout ~~and attributes~~, functionality, and design of content on the Web page;

retrieving the Web page via the wireless communications device, and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content or data derived therefrom to,

render the Web page on the display; and

~~re-rendering~~ re-render the display ~~Web page~~ in response to associated user inputs ~~to enable the user to zoom in and out a display of the Web page~~ to enable the Web page to be ~~viewed~~ browsed at various zoom levels and panned views while ~~substantially~~ preserving the original page layout ~~and attributes~~, functionality, and design of the Web page content at each zoom level and panned view.

100. (Currently Amended) The mobile hand-held device of claim 99, wherein the device comprises a mobile phone.

101. (Currently Amended) The mobile hand-held device of claim 99, wherein the device comprises one of a Personal Digital Assistant (PDA) or hand-held computer.

102. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

103. (Currently Amended) The mobile hand-held device of claim 102, wherein the user interface input enables the user to define ~~a window~~ an area of a current view of the Web page on which to zoom in on.

104. (Currently Amended) The mobile hand-held device of claim 99, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

105. (Currently Amended) The mobile hand-held device of claim 99, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink via the display; and, in response thereto,

retrieving and processing HMTL-based Web content associated with the hyperlink to produce additional scalable content; and

employing at least one of the additional scalable content or data derived therefrom to render the Web content associated with the hyperlink on the display.

106. (Currently Amended) The mobile hand-held device of claim 99, wherein at least a portion of the scalable content comprises scalable vector-based content.

107. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input made via the display.

108. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

109. (Currently Amended) The mobile hand-held device of claim [[108]] 99, wherein execution of the instructions performs further operations comprising enabling

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the ~~display~~ panned view of the Web page to be panned ~~substantially~~ in real-time.

110. (Currently Amended) The mobile hand-held device of claim 99, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein said at least one of scalable content or data derived therefrom is scaled to render a display of the Web page having a different aspect ratio.

111. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

112. (Currently Amended) The mobile hand-held device of claim 111, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

113. (Currently Amended) The mobile hand-held device of claim 99, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

114. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across a display area of the display.

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115. (Currently Amended) The mobile hand-held device of claim 114, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

116. (Currently Amended) The mobile hand-held device of claim 99, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

117. (Currently Amended) The mobile hand-held device of claim 99, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions performs further operations comprising:

building a display list via use of the scalable content and rendering display list content on a virtual display in the dynamic memory; and

scaling the display list content to re-render the display of the Web page.

118. (Currently Amended) The mobile hand-held device of claim 99, wherein execution of the instructions performs further operations comprising:

parsing HTML-based code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the

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object; and

creating a reference that links the object to the vector that is generated.

119. (Currently Amended) The mobile hand-held device of claim 118, wherein execution of the instructions performs further operations comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

120. (Currently Amended) The mobile hand-held device of claim 119, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions performs further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display in the dynamic memory.

121. (Currently Amended) The mobile hand-held device of claim 120, wherein execution of the instructions performs further operations comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned view corresponding to a rendered display of the Web page desired by a user;

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

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applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

122. (Currently Amended) The mobile hand-held device of claim 99, wherein the scalable content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

123. (Currently Amended) The mobile hand-held device of claim 99, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

determining an applicable scale factor to display at least one of the width and height of the Web page ~~substantially~~ to fit across a browser display area of the display; and

employing the scale factor to render the browser display area.

124. (Currently Amended) The mobile hand-held device of claim 99, wherein at least a portion of the instructions comprise Java-based instructions.

125. (Currently Amended) The mobile hand-held device of claim 99, wherein a portion of the HTML-based Web content comprises XML code.

126. (Currently Amended) The mobile hand-held device of claim 99, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

127. (Currently Amended) The mobile hand-held device of claim 99, wherein ~~a~~

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~~portion of the scalable content comprises vector-based content~~ the network comprises a Local Area Network or Wide Area Network.

128. (Currently Amended) A mobile device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display, to facilitate user input and display rendered content; and

storage means, in which a plurality of instructions are stored,

wherein, upon execution of the instructions by the processing means, the mobile device is enabled to perform operations, including,

rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout ~~and attributes,~~ functionality, and design of content on the Web page;

retrieving the Web page via the wireless communications means, and processing at least a portion of the HTML-based Web content to produce scalable content; and

employing at least one of the scalable content or data derived therefrom to,

render the Web page on the display; and

re-render the display ~~Web page~~ in response to associated user inputs made via the display to enable ~~the user to zoom in and out a display of~~ the Web page to be browsed at various zoom levels and panned views while preserving~~,~~

~~wherein~~ the original page layout ~~and attributes,~~ functionality, and design of the Web page content ~~are substantially preserved regardless of a~~ at each zoom level and panned view of the Web page.

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129. (Previously Presented) The mobile device of claim 128, wherein the processing means includes a general-purpose processor.

130. (Previously Presented) The mobile device of claim 128, wherein the processing means includes a special-purpose processor.

131. (Previously Presented) The mobile device of claim 128, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

132. (Currently Amended) The mobile device of claim 131, wherein the user interface input enables the user to define ~~a window~~ an area of a current view of the Web page on which to zoom in on.

133. (Currently Amended) The mobile device of claim 128, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

134. (Currently Amended) The mobile device of claim 128, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web content in response to a corresponding user interface input made via the display.

135. (Currently Amended) The mobile device of claim [[134]] 128, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web content to be panned ~~substantially~~ in real-time.

136. (Currently Amended) The mobile device of claim 128, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding

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user input, wherein in response thereto, the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

137. (Previously Presented) The mobile device of claim 128, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions performs further operations comprising:

building a display list via use of the scalable content and rendering display list objects on a virtual display in the dynamic memory; and

scaling display list objects to re-render the display of the Web page.

138. (Previously Presented) The mobile device of claim 128, wherein the network comprises a mobile service provider network.

139. (Currently Amended) The ~~wireless~~ mobile device of claim 128, wherein the device comprises a mobile phone.

140. (Currently Amended) The ~~wireless~~ mobile device of claim 128, wherein the device comprises one of a Personal Digital Assistant (PDA) or hand-held computer.

141. (Currently Amended) The ~~wireless~~ mobile device of claim 128, wherein a portion of the scalable content comprises vector-based content.

142. (Previously Presented) The mobile device of claim 128, wherein the processing means includes logic circuitry programmed with a portion of the instructions.

143. (Currently Amended) A mobile hand-held device, comprising:

a processor,

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

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FH001289

non-volatile memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile hand-held device to perform operations including,

rendering a browser interface on the display via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page ~~and defining an original width and height of the Web page~~;

in response to a user request of the Web page,

retrieving the Web page via the wireless communications interface;

rendering the Web page such that a width of the Web page is rendered to fit ~~substantially~~ across the display; and

re-rendering the display ~~Web page~~ in response to associated user inputs to enable ~~the user to zoom in and out a display of the Web page to enable~~ the Web page to be ~~viewed~~ browsed at various zoom levels and panned views while ~~substantially~~ preserving the original page layout ~~and attributes~~, functionality, and design of the Web page content at each zoom level and panned view.

144. (Currently Amended) The mobile hand-held device of claim 143, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

145. (Currently Amended) The mobile hand-held device of claim 144, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

146. (Currently Amended) The mobile hand-held device of claim 143, wherein

the Web page includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

147. (Currently Amended) The mobile hand-held device of claim 143, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

148. (Currently Amended) The mobile hand-held device of claim 147, wherein the content of the paragraph is reformatted to fit characteristics of the display when re-rendered.

149. (Currently Amended) The mobile hand-held device of claim 143, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the web page while in a zoomed state under which a portion of the web page is displayed.

150. (Currently Amended) The mobile hand-held device of claim 143, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

151. (Currently Amended) The mobile hand-held device of claim 143, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

152. (Currently Amended) The mobile hand-held device of claim 144, wherein the corresponding user input comprises tapping on the column via the display.

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153. (Currently Amended) The mobile hand-held device of claim 146, wherein the corresponding user input comprises tapping on the image via the display.

154. (Currently Amended) The mobile hand-held device of claim 147, wherein the corresponding user input comprises tapping on the paragraph via the display.

155. (Currently Amended) The mobile hand-held device of claim 143, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

156. (Currently Amended) The mobile hand-held device of claim [[155]] 143, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

157. (Currently Amended) The mobile hand-held device of claim 143, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

158. (Currently Amended) The mobile hand-held device of claim 143, wherein a portion of the HTML-based Web content comprises XML code.

159. (Currently Amended) The mobile hand-held device of claim 143, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

160. (Currently Amended) The mobile hand-held device of claim 143, wherein the network comprises a mobile service provider network.

161. (Currently Amended) The mobile hand-held device of claim 143, wherein the device comprises a mobile phone.

162. (Currently Amended) The mobile hand-held device of claim 143, wherein the device comprises one of a Personal Digital Assistant (PDA) or hand-held computer.

163. (Currently Amended) The mobile device of claim 143, wherein the ~~device comprises one of a notebook computer or laptop computer~~ network comprises a Local Area Network or a Wide Area Network.

164. (Previously Presented) The wireless device of claim 71, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

165. (Currently Amended) The mobile hand-held device of claim 99, wherein the device comprises one of a notebook computer or laptop computer.

166. (Previously Presented) The mobile device of claim 128, wherein the device comprises one of a notebook computer or laptop computer.

167. (Previously Presented) The wireless device of claim 81, wherein the corresponding user input comprises tapping on the column via the display.

168. (Previously Presented) The wireless device of claim 83, wherein the corresponding user input comprises tapping on the image via the display.

169. (Previously Presented) The wireless device of claim 84, wherein the corresponding user input comprises tapping on the paragraph via the display.

170. (Currently Amended) The mobile hand-held device of claim 111, wherein

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the corresponding user input comprises tapping on the column via the display.

171. (Currently Amended) The mobile hand-held device of claim 113, wherein the corresponding user input comprises tapping on the image via the display.

172. (Currently Amended) The mobile hand-held device of claim 114, wherein the corresponding user input comprises tapping on the paragraph via the display.

173. (Previously Presented) The mobile device of claim 136, wherein the corresponding user input comprises tapping on the image via the display.

174. (Currently Amended) A wireless device, comprising:

a processor;

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display;

memory; and

a storage device, on which a plurality of instructions are stored that when executed by the processor enable the wireless device to perform operations including,

rendering a browser interface via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format including HTML code defining an original page layout ~~and attributes~~, functionality, and design of corresponding content on the Web page;

retrieving, via the wireless communications interface, and translating at least a portion of the HTML-based Web content into scalable content that supports a scalable resolution-independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~ design of the content defined by its original format when scaled

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and rendered;

employing the scalable content to render the Web page on the display using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display,

wherein the original page layout ~~and attributes,~~ functionality, and design of the Web page content are ~~substantially~~ preserved under both the first and second scale factors.

175. (Currently Amended) The wireless device of claim 174, wherein the display is re-rendered ~~substantially~~ in real-time.

176. (Currently Amended) The wireless device of claim 174, wherein the device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

177. (Currently Amended) The wireless device of claim 174, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

178. (Currently Amended) The wireless device of claim 174, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input.

179. (Currently Amended) The wireless device of claim 178, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

180. (Currently Amended) A method, comprising:

rendering a browser interface on a display of a device via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web

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page and an original page layout ~~and attributes~~, functionality, and design of content on the Web page;

in response to a user request to access the Web page,

retrieving the Web page via the device, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~ design of the content defined by its original format when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that ~~the original~~ a width of the Web page is rendered to fit ~~substantially~~ across the display~~,~~

~~wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content~~.

181. (Previously Presented) The method of claim 180, further comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

182. (Currently Amended) The method of claim 181, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

183. (Previously Presented) The method of claim 180, wherein the Web page includes at least one hyperlink, the method further comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

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employing the additional scalable content to render the Web content associated with the hyperlink on the display.

184. (Currently Amended) The method of claim 180, ~~performs~~ further comprising:

parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects, or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

185. (Currently Amended) The method of claim 180, further comprising enabling the Web page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout ~~and attributes,~~ functionality, and design of the Web page content are ~~substantially~~ preserved at each of the different resolutions.

186. (Previously Presented) The method of claim 180, further comprising returning the display of the Web page to a previous view in response to a corresponding user input.

187. (Currently Amended) The method of claim 180, further comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user

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input.

188. (Currently Amended) The method of claim 187, further comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

189. (Currently Amended) The method of claim 180, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable content is scaled when rendered so as to produce a display of the Web page having a different aspect ratio.

190. (Currently Amended) The method of claim 180, further comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

191. (Previously Presented) The method of claim 190, wherein the corresponding user input comprises tapping on the column via the display.

192. (Previously Presented) The method of claim 190, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

193. (Currently Amended) The method of claim 180, wherein the Web content includes at least one image, the method further comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

194. (Previously Presented) The method of claim 193, wherein the corresponding user input comprises tapping on the image via the display.

195. (Currently Amended) The method of claim 180, further comprising enabling a user to zoom on a paragraph of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

196. (Currently Amended) The method of claim [[132]] 195, wherein the corresponding user input comprises tapping on the paragraph via the display.

197. (Currently Amended) The method of claim [[132]] 195, wherein the content of the paragraph is reformatted to fit characteristics of the display when the display is re-rendered.

198. (Previously Presented) The method of claim 180, wherein the Web page includes text, layout attributes, and images, the method further comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

199. (Previously Presented) The method of claim 180, further comprising:

generating a vector-based display list associated with the scalable content; and

employing the display list to re-render the display at different scale factors to zoom the Web page.

200. (Currently Amended) The method of claim 180, further comprising:

parsing markup language code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

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defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

201. (Previously Presented) The method of claim 200, further comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

202. (Previously Presented) The method of claim 201, further comprising:

mapping the object vectors and associated bounding boxes to a virtual display in memory.

203 (Currently Amended) The method of claim 202, further comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned view corresponding to a rendered display of the Web page desired by a user; and

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

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applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

204. (Previously Presented) The method of claim 180, wherein the scalable content includes scalable text content, the method further comprising scaling a scalable font to render the scalable text content.

205. (Previously Presented) The method of claim 180, wherein the method is facilitated, at least in part, via execution of Java-based instructions.

206. (Previously Presented) The method of claim 180, wherein the device comprises a mobile phone.

207. (Currently Amended) The method of claim 180, wherein the device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

208. (Previously Presented) The method of claim 180, further comprising accessing the Internet via a wireless connection to retrieve the Web page.

209. (Previously Presented) The method of claim 180, wherein a portion of the scalable content comprises vector-based content.

210. (Currently Amended) The method of claim 180, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

211. (Currently Amended) A method, comprising:

rendering a browser interface on a hand-held device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout ~~and attributes,~~ functionality, and design of content on the Web

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page;

retrieving the Web page via the hand-held device, and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content or data derived therefrom to,

render the Web page on a display of the hand-held device; and

re-render the display ~~Web page~~ in response to associated user inputs ~~to enable the user to zoom in and out a display of the Web page~~ to enable the Web page to be ~~viewed~~ browsed at various zoom levels and panned views while ~~substantially~~ preserving the original page layout ~~and attributes~~, functionality, and design of the Web page content at each zoom level and panned view.

212. (Currently Amended) The method of claim 211, wherein the hand-held device comprises a mobile phone.

213. (Currently Amended) The method of claim 211, wherein the hand-held device comprises one of a Personal Digital Assistant (PDA) or hand-held computer.

214. (Previously Presented) The method of claim 211, further comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

215. (Currently Amended) The method of claim 214, wherein the user interface input enables the user to define ~~a window~~ an area of a current view of the Web page on which to zoom in on.

216. (Currently Amended) The method of claim 211, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

217. (Previously Presented) The method of claim 211, wherein the Web page includes at least one hyperlink, the method further comprising:

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enabling the user to select the hyperlink via the display; and, in response thereto,

retrieving and processing HMTL-based Web content associated with the hyperlink to produce additional scalable content; and

employing at least one of the additional scalable content or data derived therefrom to render the Web content associated with the hyperlink on the display.

218. (Previously Presented) The method of claim 211, wherein at least a portion of the scalable content comprises scalable vector-based content.

219. (Previously Presented) The method of claim 211, further comprising returning the display of the Web page to a previous view in response to a corresponding user input made via the display.

220. (Currently Amended) The method of claim 211, further comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

221. (Currently Amended) The method of claim [[220]] 211, further comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

222. (Currently Amended) The method of claim 211, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein said at least one of scalable content or data derived therefrom is scaled to render a display of the Web page having a different aspect ratio.

223. (Previously Presented) The method of claim 211, further comprising enabling a user to zoom on a column of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

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224. (Previously Presented) The method of claim 223, wherein the corresponding user input comprises tapping on the column via the display.

225. (Previously Presented) The method of claim 223, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

226. (Previously Presented) The method of claim 211, wherein the Web content includes at least one image, the method further comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

227. (Previously Presented) The method of claim 226, wherein the corresponding user input comprises tapping on the image via the display.

228. (Previously Presented) The method of claim 211, further comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

229. (Previously Presented) The method of claim 228, wherein the corresponding user input comprises tapping on the paragraph via the display.

230. (Previously Presented) The method of claim 228, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

231. (Previously Presented) The method of claim 211, wherein the Web page includes text, layout attributes, and images, the method further comprising:

receiving content corresponding to the text and layout attributes via a first

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connection; and

receiving content corresponding to at least one image via a second connection.

232. (Currently Amended) The method of claim 211, wherein the hand-held device includes dynamic memory having at least a portion employed for rendering purposes, the method further comprising:

building a display list via use of the scalable content and rendering display list content on a virtual display in dynamic memory; and

scaling the display list content to re-render the display of the Web page.

233. (Currently Amended) The method of claim 211, further comprising:

parsing HTML-based code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

234. (Previously Presented) The method of claim 233, further comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

235. (Currently Amended) The method of claim 234, wherein the hand-held device includes dynamic memory having at least a portion employed for rendering

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purposes, the method further comprising:

mapping the object vectors and associated bounding boxes to a virtual display in the dynamic memory.

236. (Currently Amended) The method of claim 235, further comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned view corresponding to a rendered display of the Web page desired by a user;

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

237. (Previously Presented) The method of claim 211, wherein the scalable content includes scalable text content, the method further comprising scaling a scalable font to render the scalable text content.

238. (Currently Amended) The method of claim 211, wherein the original format of the Web page defines a height and width for the Web page, the method further comprising:

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determining an applicable scale factor to display at least one of the width and height of the Web page ~~substantially~~ across a browser display area of the display; and

employing the scale factor to render the browser display area.

239. (Previously Presented) The method of claim 211, wherein the method is facilitated, at least in part, via execution of Java-based instructions.

240. (Previously Presented) The method of claim 211, wherein a portion of the HTML-based Web content comprises XML code.

241. (Currently Amended) The method of claim 211, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

242. (Previously Presented) The method of claim 211, wherein a portion of the scalable content comprises vector-based content.

243. (Cancelled)

244. (Currently Amended) A method, comprising:

rendering a browser interface on a display of a device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page ~~and defining an original width and height of the Web page~~;

in response to a user request of the Web page via the browser interface,

retrieving the Web page via the device;

rendering the Web page via the device such that a full width of the Web page is rendered ~~to fit substantially across~~ on the display; and

re-rendering the Web page in response to associated user inputs to the hand-held device to enable ~~the user to zoom in and out a display of~~ the Web page to be

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browsed at various zoom levels and panned views while preserving~~,~~

~~wherein~~ the original page layout, functionality, and design of the Web page content ~~is substantially preserved regardless of a~~ at each zoom level and panned view of the Web page[[.]]~~.~~

wherein the method enables a user of the device to browse, zoom, and pan billions of Web pages in a manner that preserves the original layout, functionality, and design of the HTML-based Web page content of each Web page.

245. (Previously Presented) The method of claim 244, further comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

246. (Previously Presented) The method of claim 245, wherein the corresponding user input comprises tapping on the column via the display.

247. (Previously Presented) The method of claim 245, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

248. (Previously Presented) The method of claim 244, wherein the Web page includes at least one image, the method further comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

249. (Previously Presented) The method of claim 248, wherein the corresponding user input comprises tapping on the image via the display.

250. (Previously Presented) The method of claim 244, further comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input,

wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

251. (Previously Presented) The method of claim 250, wherein the corresponding user input comprises tapping on the paragraph via the display.

252. (Previously Presented) The method of claim 250, wherein the content of the paragraph is reformatted to fit characteristics of the display when re-rendered.

253. (Currently Amended) The method of claim 244, further comprising enabling a user to pan a ~~display~~ view of the web page while in a zoomed state under which a portion of the web page is displayed in response to a user input made via the display.

254. (Previously Presented) The method of claim 244, further comprising returning the display of the Web page to a previous view in response to a corresponding user input.

255. (Currently Amended) The method of claim 244, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

256. (Currently Amended) The method of claim 244, further comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

257. (Currently Amended) The method of claim [[256]] 244, further comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

258. (Previously Presented) The method of claim 244, wherein the Web page includes text, layout attributes, and images, the method further comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

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receiving content corresponding to at least one image via a second connection.

259. (Previously Presented) The method of claim 244, wherein a portion of the HTML-based Web content comprises XML code.

260. (Currently Amended) The method of claim 244, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

261. (Previously Presented) The method of claim 244, wherein the ~~wireless connection comprises~~ Web page is retrieved via a wireless connection to one of a mobile service provider network, local area network, or wide area network.

262. (Previously Presented) The method of claim 244, wherein the device comprises a mobile phone.

263. (Currently Amended) The method of claim 244, wherein the device comprises ~~one of a Personal Digital Assistant (PDA) or~~ a hand-held ~~computer~~ device.

264. (Currently Amended) The method of claim 244, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

265. (Currently Amended) A method, comprising:

rendering a browser interface on a display via which a user of a device is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format including HTML code defining an original page layout ~~and attributes~~, functionality, and design of corresponding content on the Web page;

retrieving the Web page, via the device, and translating at least a portion of the HTML-based Web content into scalable content that supports a scalable resolution-

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independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~ design of the content defined by its original format when scaled and rendered; and

employing the scalable content to render the Web page on the display using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render the display,

wherein the original page layout ~~and attributes~~, functionality, and design of the Web page content are ~~substantially~~ preserved under both the first and second scale factors.

266. (Currently Amended) The method of claim 265, wherein the display is re-rendered ~~substantially~~ in real-time.

267. (Currently Amended) The method of claim 265, wherein the device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

268. (Previously Presented) The method of claim 265, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

269. (Currently Amended) The method of claim 265, further comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input.

270. (Currently Amended) The method of claim 269, further comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

271. (Currently Amended) A machine-readable medium having a plurality of instructions tangibly stored thereon, which when executed enable a device to perform operations comprising:

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rendering a browser interface via which a user is enabled to request access to a Web page hosted by an Internet Web site, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web page and an original page layout ~~and attributes,~~ functionality, and design of content on the Web page;

retrieving the Web page via the wireless communication means, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~ design of the content defined by its original format when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that ~~the original~~ a width of the Web page is rendered to fit ~~substantially~~ across the display~~,~~

~~wherein the rendered Web page comprises a scaled representation of the original Web page that substantially preserves the original page layout and attributes of the Web page content~~.

272. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a corresponding user interface input.

273. (Currently Amended) The machine-readable medium of claim 272, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

274. (Previously Presented) The machine-readable medium of claim 271, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions

performs further operations comprising:

enabling the user to select the hyperlink; and, in response thereto,

retrieving and translating Web content associated with the hyperlink to produce additional scalable content; and

employing the additional scalable content to render the Web content associated with the hyperlink on the display.

275. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising:

parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including at least one of text objects, graphic layout objects, or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

276. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling the Web page to be displayed at different resolutions by scaling the scalable content to re-render the display in response to associated user inputs,

wherein the original page layout ~~and attributes,~~ functionality, and design of the Web page content are ~~substantially~~ preserved at each of the different resolutions.

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277. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

278. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input.

279. (Currently Amended) The machine-readable medium of claim 278, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

280. (Currently Amended) The machine-readable medium of claim 271, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable content is scaled when rendered so as to produce a display of the Web page having a different aspect ratio.

281. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

282. (Previously Presented) The machine-readable medium of claim 281, wherein the corresponding user input comprises tapping on the column via the display.

283. (Previously Presented) The machine-readable medium of claim 281, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

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284. (Previously Presented) The machine-readable medium of claim 271, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

285. (Previously Presented) The machine-readable medium of claim 284, wherein the corresponding user input comprises tapping on the image via the display.

286. (Previously Presented) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

287. (Previously Presented) The machine-readable medium of claim 286, wherein the corresponding user input comprises tapping on the paragraph via the display.

288. (Previously Presented) The machine-readable medium of claim 286, wherein the content of the paragraph is reformatted to fit characteristics of the display when the display is re-rendered.

289. (Previously Presented) The machine-readable medium of claim 271, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

290. (Previously Presented) The machine-readable medium of claim 271, wherein

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execution of the instructions performs further operations comprising:

generating a vector-based display list associated with the scalable content; and

employing the display list to re-render the display at different scale factors to zoom the Web page.

291. (Currently Amended) The machine-readable medium of claim 271, wherein execution of the instructions performs further operations comprising:

parsing markup language code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

292. (Previously Presented) The machine-readable medium of claim 291, wherein execution of the instructions performs further operations comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

293. (Previously Presented) The machine-readable medium of claim 292, wherein execution of the instructions performs further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display in memory.

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294. (Currently Amended) The machine-readable medium of claim 293, wherein execution of the instructions performs further operations comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned view corresponding to a rendered display of the Web page desired by a user; and

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

295. (Previously Presented) The machine-readable medium of claim 271, wherein the scalable content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

296. (Previously Presented) The machine-readable medium of claim 271, wherein at least a portion of the instructions comprise Java-based instructions.

297. (Previously Presented) The machine-readable medium of claim 271, wherein

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the device comprises a mobile phone.

298. (Currently Amended) The machine-readable medium of claim 271, wherein the device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

299. (Previously Presented) The machine-readable medium of claim 271, wherein the Web page is accessed via a mobile service provider network.

300. (Previously Presented) The machine-readable medium of claim 271, wherein a portion of the scalable content comprises vector-based content.

301. (Previously Presented) The machine-readable medium of claim 271, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

302. (Previously Presented) The machine-readable medium of claim 271, wherein the instructions are embodied as a Web browser.

303. (Currently Amended) A machine-readable medium having a plurality of instructions comprising a Web browser tangibly stored thereon, which when executed enable a device to perform operations comprising:

rendering a browser interface on a display associated with the device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout ~~and attributes,~~ functionality, and design of content on the Web page;

retrieving the Web page and processing HTML-based Web content to produce scalable content; and

employing at least one of the scalable content or data derived therefrom to,

render the Web page on the display; and

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re-render the display ~~Web page~~ in response to associated user inputs to enable ~~the user to zoom in and out a display of~~ the Web page to be browsed at various zoom levels and panned views while preserving~~,~~

~~wherein~~ the original page layout ~~and attributes~~, functionality, and design of the Web page content ~~are substantially preserved regardless of a~~ at each zoom level and panned view of the Web page[[.]].

wherein the Web browser enables a user of the device to browse, zoom, and pan billions of Web pages in a manner that preserves the original layout, functionality, and design of the HTML-based Web page content of each Web page at each zoom level and panned view.

304. (Previously Presented) The machine-readable medium of claim 303, wherein the device comprises a mobile phone.

305. (Currently Amended) The machine-readable medium of claim 303, wherein the device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

306. (Previously Presented) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input.

307. (Currently Amended) The machine-readable medium of claim 306, wherein the user interface input enables the user to define ~~a window~~ an area of a current view of the Web page on which to zoom in on.

308. (Currently Amended) The machine-readable medium of claim 303, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming

operations.

309. (Currently Amended) The machine-readable medium of claim 303, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink ~~via the display~~; and, in response thereto,

retrieving and processing HMTL-based Web content associated with the hyperlink to produce additional scalable content; and

employing at least one of the additional scalable content or data derived therefrom to render the Web content associated with the hyperlink on the display.

310. (Previously Presented) The machine-readable medium of claim 303, wherein at least a portion of the scalable content comprises scalable vector-based content.

311. (Previously Presented) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input made via the display.

312. (Currently Amended) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

313. (Currently Amended) The machine-readable medium of claim [[312]] 303, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

314. (Currently Amended) The machine-readable medium of claim 303, wherein

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the page layout of the Web page is defined to have an original aspect ratio, and wherein said at least one of scalable content or data derived therefrom is scaled to render a display of the Web page having a different aspect ratio.

315. (Currently Amended) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web content via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

316. (Previously Presented) The machine-readable medium of claim 315, wherein the corresponding user input comprises tapping on the column via the display.

317. (Previously Presented) The machine-readable medium of claim 315, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

318. (Currently Amended) The machine-readable medium of claim 303, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

319. (Previously Presented) The machine-readable medium of claim 318, wherein the corresponding user input comprises tapping on the image via the display.

320. (Currently Amended) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the

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selected paragraph is ~~displayed substantially~~ rendered to fit across a browser display area of the display.

321. (Previously Presented) The machine-readable medium of claim 320, wherein the corresponding user input comprises tapping on the paragraph via the display.

322. (Previously Presented) The machine-readable medium of claim 320, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

323. (Previously Presented) The machine-readable medium of claim 303, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

324. (Currently Amended) The machine-readable medium of claim 303, wherein the device includes dynamic memory having at least a portion employed for rendering purposes, and wherein execution of the instructions performs further operations comprising:

building a display list via use of the scalable content and rendering display list content on a virtual display in the dynamic memory; and

scaling the display list content to re-render the display of the Web page.

325. (Currently Amended) The machine-readable medium of claim 303, wherein execution of the instructions performs further operations comprising:

parsing HTML-based code corresponding to the ~~received~~ retrieved Web ~~content~~ page to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to the vector that is generated.

326. (Previously Presented) The machine-readable medium of claim 325, wherein execution of the instructions performs further operations comprising:

generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

327. (Currently Amended) The machine-readable medium of claim 326, ~~further comprising~~ wherein the device includes dynamic memory having at least a portion employed for rendering purposes, and wherein execution of the instructions performs further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display in the dynamic memory.

328. (Currently Amended) The machine-readable medium of claim 327, wherein execution of the instructions performs further operations comprising:

enabling a user to view the Web page at a user-selectable zoom level and ~~pan~~ panned view by,

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and ~~pan~~ panned

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view corresponding to a rendered display of the Web page desired by a user;

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box;

applying an appropriate scale factor to the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

329. (Previously Presented) The machine-readable medium of claim 303, wherein the scalable content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

330. (Currently Amended) The machine-readable medium of claim 303, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

determining an applicable scale factor to display at least one of the width and height of the Web page ~~substantially~~ across a browser display area of the display; and

employing the scale factor to render the browser display area.

331. (Previously Presented) The machine-readable medium of claim 303, wherein at least a portion of the instructions comprise Java-based instructions.

332. (Previously Presented) The machine-readable medium of claim 303, wherein a portion of the HTML-based Web content comprises XML code.

333. (Currently Amended) The machine-readable medium of claim 303, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

334. (Previously Presented) The machine-readable medium of claim 303, wherein a portion of the scalable content comprises vector-based content.

335. (Previously Presented) The machine-readable medium of claim 303, wherein the device comprises one of a desktop computer, notebook computer or laptop computer.

336. (Cancelled)

337. (Currently Amended) A machine-readable medium having a plurality of instructions tangibly stored thereon, which when executed enable a wireless device to perform operations comprising:

rendering a browser interface on a display of the wireless device via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page ~~and defining an original width and height of the Web page~~;

in response to a user request of the Web page,

retrieving the Web page via the wireless device;

rendering the Web page such that a width of the Web page is rendered to fit ~~substantially~~ across the display; and

re-rendering the Web page in response to associated user inputs to enable ~~the user to zoom in and out a display of the Web page to enable~~ the Web page to be ~~viewed~~ browsed at various zoom levels and panned views while ~~substantially~~ preserving the original page layout ~~and attributes~~, functionality, and design of the Web page

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content at each zoom level and panned view.

338. (Previously Presented) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is enlarged.

339. (Previously Presented) The machine-readable medium of claim 338, wherein the corresponding user input comprises tapping on the column via the display.

340. (Previously Presented) The machine-readable medium of claim 338, wherein the content of the column is reformatted to fit characteristics of the display when the display is re-rendered.

341. (Previously Presented) The machine-readable medium of claim 337, wherein the Web page includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image via a corresponding user input, wherein in response thereto, the display is re-rendered such that the image is enlarged.

342. (Previously Presented) The machine-readable medium of claim 341, wherein the corresponding user input comprises tapping on the image via the display.

343. (Previously Presented) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web page via a corresponding user input, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

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344. (Previously Presented) The machine-readable medium of claim 343, wherein the corresponding user input comprises tapping on the paragraph via the display.

345. (Previously Presented) The machine-readable medium of claim 343, wherein the content of the paragraph is reformatted to fit characteristics of the display when re-rendered.

346. (Previously Presented) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the web page while in a zoomed state under which a portion of the web page is displayed.

347. (Previously Presented) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising returning the display of the Web page to a previous view in response to a corresponding user input.

348. (Currently Amended) The machine-readable medium of claim 337, wherein the display of the Web page is re-rendered ~~substantially~~ in real-time to effect zooming operations.

349. (Currently Amended) The machine-readable medium of claim 337, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input made via the display.

350. (Currently Amended) The machine-readable medium of claim [[349]] 337, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

351. (Previously Presented) The machine-readable medium of claim 337, wherein

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the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

352. (Previously Presented) The machine-readable medium of claim 337, wherein a portion of the HTML-based Web content comprises XML code.

353. (Currently Amended) The machine-readable medium of claim 337, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the Web page design that are preserved at each zoom level and panned view.

354. (Currently Amended) The machine-readable medium of claim 337, wherein the wireless device is configured to connect to a mobile service provider network and retrieve the Web page via the mobile service provider network.

355. (Currently Amended) The machine-readable medium of claim 337, wherein the wireless device comprises a mobile phone.

356. (Currently Amended) The machine-readable medium of claim 337, wherein the wireless device comprises ~~one of~~ a ~~Personal Digital Assistant (PDA) or~~ hand-held ~~computer~~ device.

357. (Currently Amended) The machine-readable medium of claim 337, wherein the wireless device comprises one of a notebook computer or laptop computer.

358. (Previously Presented) The machine-readable medium of claim 337, wherein the instructions are embodied as a Web browser.

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359. (Currently Amended) A machine-readable medium having a plurality of instructions comprising a Web browser stored thereon, which when executed enable a device to perform operations comprising:

launching a Web browser including a browser interface via which a user is enabled to request access to a Web page, the Web page comprising HTML-based Web content having an original format including HTML code defining an original page layout ~~and attributes~~, functionality, and design of corresponding content on the Web page;

retrieving, and translating at least a portion of the HTML-based Web content into scalable content that supports a scalable resolution-independent ~~display~~ representation of the Web page that ~~substantially retains~~ preserves the original page layout, functionality and ~~attributes~~ design of the content defined by its original format when scaled and rendered; and

employing the scalable content to render the Web page [[in]] on the Web browser using a first scale factor; and

enabling the Web page to be displayed at a different resolution by scaling the scalable content using a second scale factor to re-render ~~the display of~~ the Web page on the Web browser,

wherein the original page layout ~~and attributes~~, functionality, and design of the Web page content are ~~substantially~~ preserved under both the first and second scale factors, and

wherein the Web browser enables a user of the device to browse billions of Web pages at multiple scale factors in a manner that preserves the original layout, functionality, and design of the HTML-based Web page content of each Web page at each scale factor.

360. (Currently Amended) The machine-readable medium of claim 359, wherein

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the display is re-rendered ~~substantially~~ in real-time.

361. (Currently Amended) The machine-readable medium of claim 359, wherein the Web browser is configured to be installed on a hand-held device ~~comprising one of a Personal Digital Assistant (PDA) or hand-held computer~~.

362. (Previously Presented) The machine-readable medium of claim 359, wherein the Web browser is configured to be installed on at least one of a desktop computer, notebook computer or laptop computer.

363. (Currently Amended) The machine-readable medium of claim 359, wherein execution of the instructions performs further operations comprising enabling a user to pan a ~~display~~ view of the Web page in response to a corresponding user input.

364. (Currently Amended) The machine-readable medium of claim 363, wherein execution of the instructions performs further operations comprising enabling the ~~display~~ view of the Web page to be panned ~~substantially~~ in real-time.

365. (Currently Amended) The wireless device of claim 81, wherein the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

366. (Currently Amended) The wireless device of claim 83, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

367. (Currently Amended) The wireless device of claim 84, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

368. (Currently Amended) The mobile hand-held device of claim 144, wherein

the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

369. (Currently Amended) The mobile hand-held device of claim 146, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

370. (Currently Amended) The mobile hand-held device of claim 147, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

371. (Currently Amended) The method of claim 223, wherein the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

372. (Currently Amended) The method of claim 226, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

373. (Currently Amended) The method of claim 228, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

374. (Currently Amended) The method of claim 245, wherein the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

375. (Currently Amended) The method of claim 248, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

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376. (Currently Amended) The method of claim 250, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

377. (Currently Amended) The machine-readable medium of claim 281, wherein the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

378. (Currently Amended) The machine-readable medium of claim 284, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

379. (Currently Amended) The machine-readable medium of claim 286, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

380. (Currently Amended) The machine-readable medium of claim 338, wherein the display is re-rendered such that content corresponding to the selected column is ~~displayed substantially~~ rendered to fit across the display.

381. (Currently Amended) The machine-readable medium of claim 341, wherein the display is re-rendered such that the image is ~~displayed substantially~~ rendered to fit across the display.

382. (Currently Amended) The machine-readable medium of claim 343, wherein the display is re-rendered such that content corresponding to the selected paragraph is ~~displayed substantially~~ rendered to fit across the display.

383. (Currently Amended) The wireless device of claim 71, wherein the device enables a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of~~

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~~substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes,~~ functionality, and design of the HTML-based Web page content of each Web page.

384. (Currently Amended) The mobile device of claim 99, wherein the device enables a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes,~~ functionality, and design of the HTML-based Web page content of each Web page.

385. (Currently Amended) The mobile hand-held device of claim 143, wherein the device enables a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes,~~ functionality, and design of the HTML-based Web page content of each Web page.

386. (Currently Amended) The method of claim 211, further comprising enabling a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes,~~ functionality, and design of the HTML-based Web page content of each Web page.

387. (Currently Amended) The method of claim 265, further comprising enabling a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes,~~ functionality, and design of the HTML-based Web page content of each Web page.

388. (Currently Amended) The machine-readable medium of claim 271, wherein

execution of the instructions enables a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes~~, functionality, and design of the HTML-based Web page content of each Web page.

389. (Currently Amended) The machine-readable medium of claim 337, wherein execution of the instructions enables a user to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of pan substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes~~, functionality, and design of the HTML-based Web page content of each Web page.

390. (Cancelled)

391. (Currently Amended) A hand-held wireless device, comprising:

a processor,

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

non-volatile memory, operatively coupled to the processor, in which software comprising a browser is stored, the browser comprising a plurality of instructions that when executed by the processor enable the device to perform operations including,

rendering a browser interface on the display via which a user is enabled to request access to a Web page including at least one image, at least one column, ~~and a plurality of hyperlinks~~ at least one hyperlink to an external reference and having a width and height;

retrieving the Web page via the wireless communications interface;

rendering the Web page on the display such that at least one of the width and height of the Web page is fully displayed; and

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enabling the user to,

zoom and pan a ~~display~~ view of the Web page;

activate ~~any viewable~~ a currently displayed hyperlink to an external reference while at ~~any~~ a given zoom level and ~~pan position~~ panned view ~~by tapping on the hyperlink~~, wherein in response to an activation of a hyperlink to an external reference, Web content associated with the external reference is retrieved and rendered on the display;

zoom in on an image of the Web page by tapping on the image via the display;

zoom in on a column of the Web page by tapping on the column via the display; and

zoom out to a previous view of the Web page.

392. (Currently Amended) The hand-held wireless device of claim 391, wherein the Web page comprises HTML-based Web page content defining an original page layout ~~and attributes~~, functionality, and design of the Web page content, and wherein the browser renders the Web page such that the original page layout ~~and attributes~~, functionality, and design of the Web page are ~~substantially~~ preserved at any selectable zoom level.

393. (Currently Amended) The hand-held wireless device of claim 392, wherein the user is enabled to ~~view~~ browse, zoom, and pan ~~the HTML-based Web page content of substantially any Web page~~ billions of Web pages in a manner that ~~substantially~~ preserves the original layout ~~and attributes~~, functionality, and design of the HTML-based Web page content of each Web page.

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REMARKS

This Amendment is in response to the Office Action mailed October 23, 2007. In the Office Action,

In the Amendment, claims 73, 76, 78, 79, 88, 91, 99-127, 128, 133-136, 139-141, 143-163, 165, 170-172, 174-180, 182, 184, 185, 187-190, 193, 195-197, 200, 203, 207, 210, 211-213, 215, 216, 220-222, 232, 233, 235, 236, 238, 141, 144, 153, 255-257, 260, 263-267, 269-271, 273, 276, 278-280, 291, 294, 298, 303, 305, 307-309, 312-315, 318, 320, 324, 325, 327, 328, 330, 333, 337, 348-350, 353-357, 359-361, 363-389, and 391-393 have been amended to clarify the claimed invention. Claims 243, 336, and 390 have been cancelled. Claims 71-92 and 94-242, 244-335, 337-389, and 391-393 are now pending. No new matter has been added, and all claims are supported by the original disclosure of 09/878,097 and other priority applications incorporated therein by reference (Application Serial Nos. 60/217,345, 60/211,019, and 09/828,511). Entry of this amendment is respectfully solicited.

Examiner Interview

An in-person examiner interview was conducted at the USPTO on May 5, 2008. The attendees included Examiner Quoc A. Tran, Primary Examiner Rachna Desai, Inventor Gary Rohrabaugh, and attorney representative R. Alan Burnett.

Demonstration of Device

During the interview, a demonstration of a device and software based on the underlying teachings of the claimed invention was presented. The demonstration device was a Toshiba Pocket PC running a version of the SoftView™ browser, as discussed in the response to Office Action filed December 9, 2007. Inventor Gary Rohrabaugh demonstrated the SoftView™ browser's ability to scale and render Web pages to fit the Toshiba's display, selectively zoom on user-defined windows, images, columns, and paragraphs, and generally zoom and pan Web pages and performing browser functions such as navigation via hyperlinks while preserving the

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layout, functionality, and design of the Web pages in a manner similar to desktop browser such as Internet Explorer, Firefox, Netscape Navigator, *etc.* Claims corresponding to each of these features are included in the present application.

Discussion of 35 U.S.C. § 103 Rejections

A discussion of the rejections under 35 U.S.C. §103(a) as being unpatentable over *Chithambaram*, in view of *Roy* was conducted. In connection with the discussion was a video demonstrating how the Autodesk MapGuide technology disclosed in *Chithambaram* and *Roy* works (in addition, see further discussion below). The video shows a desktop browser display of various MapGuide sites, and clearly demonstrates that the MapGuide implementation employs an embedded application (plug-in) that operates separately from the browser. The video shows the tracking of packets (using a packet-sniffer utility) received from the MapGuide host site, and demonstrates that the data delivered to the MapGuide plug-in does not comprise HTML-based content, but rather comprises proprietary MapGuide data and related data associated with HTTP Requests and Responses. There was a further discussion of this art as applied to independent claim 71 in particular, where Applicant Rohrabaugh and Representative Burnett made clear that even when the client was considered to be a desktop, the combination of *Chithambaram* and *Roy* fails the prima facie obviousness test for at least the reason that there is no generation of scalable content based on HTML-based content, and that the only content that could be construed as scalable was MapGuide data, which is received by the desktop client in a scalable form to begin with.

Obviousness-type Double Patenting

A pending provisional obviousness-type double patenting rejection was also discussed. Applicants asserted that the present claims are not obvious over the issued claims of the parent 7,210,099 patent claims. Examiner Tran said he would

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need to reconsider this rejection in view of his new understanding of the claims and arguments presented in response to the current Office Action. Applicants respectfully request the Examiner to consider in detail the arguments made in the December 9, 2007 response, as well as the amendments to the pending claims in reassessing this rejection. Applicants have chosen not to file a terminal disclaimer at this time.

Rejections under 35 U.S.C. § 112, Second Paragraph – use of "Substantially"

In the office action of October 23, 2007, Examiner Tran rejected a number of claims reciting the term "substantially" under 35 U.S.C. § 112, Second Paragraph as rendering the claims indefinite. During the interview, it became clear that Examiner Tran was construing the term "substantially" in an extremely broad manner that was much broader than the intended claim language. By way of example, Examiner Tran took a piece of paper and asked, "is this substantial?" He then folded the paper and asked "is this substantial?" He folded the paper one more time (so it was now a quarter of its original size), and again asked "is this substantial?" Moreover, both Examiners Tran and Desai identified that the use of "substantially" in the context of the recited claim language was not explicitly defined in the specification. When representative Burnett pointed out that there is a significant portion of US patents that include the word "substantially" in at least one claim, many of which do not use the word "substantially" anywhere in the specification outside of the claims, Examiner Tran indicated those were examined by other examiners, and not him. To illustrate how the use of "substantially" can be supported via drawings alone, representative Burnett presented a copy of US 5,956,025 to Goulden *et al.* In particular, each of claims 3, 4, 11, and 12 recite, in part "wherein the respective first are comprises a band *substantially across the display*." The support for this claim element is via the drawing figures, as the term "substantially" is not present in the

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specification. In response to this argument, Examiner Tran stated that he did not examine this patent (US 5,956,025), and what another Examiner did was not material to examination of the present application.

In view of the foregoing, it became clear that the use of "substantially" in a claim in the present application was going to render the claim indefinite due to the broad interpretation of the term by Examiner Tran. Accordingly, the Applicants have elected to remove the word "substantially" from the pending claims. However, it is noted that the intended scope of the corresponding claims (*i.e.,* as originally intended by the Applicants) has not changed due to the removal of the word "substantially," as the Applicants never intended the term to have the breadth accorded by Examiner Tran. Accordingly, no *Festo*[1] estoppel shall apply, as no equivalence has been surrendered, as argued more specifically below.

It is well established that statements in the file history may be used to interpret the scope of the claim elements. See, *e.g., Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 41 USPQ2d 1865 (1997); *Markman v. Westview Instruments*, 52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir. 1995), aff'd 116 S. Ct. 1384, 38 USPQ2d 1461 (1996); *Vitronics Corp. v. Conceptronic Inc.,* 90 F.3d 1576, 39 USPQ2d 1573 (Fed. Cir. 1996). Moreover, file histories of more recently issued patents and pending applications which have been published are available to the public via PAIR. Accordingly, applicants respectfully assert that the scope of the terminology and claim elements discusses below clearly renders each claim element to be definite, as such discussion is publically made available to those skilled in the art, as well as the public in general.

Scope of the terminology "the Web page is rendered to fit across the display"

Each of claims 71, 143, 180, 244, 271, and 337 contain claim elements

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[1] *Festo Corp. v. Shoketsu Kinzoku Kogyokabushiki Co.* 535 U.S. 722 (2002) 234 F.3d 558.

including the language "the Web page is rendered to fit across the display," replacing the prior language "... fit substantially across the display." A discussion of the intended scope of this terminology was presented in the December 9, 2007 response to the Office Action of October 23, 2007; an augmented argument (to account for the removal of the word substantially) is presented below.

Figs. 7A, 8A, and 9A show examples of Web pages rendered to fit across the display of the illustrated Palm IIIc touchscreen display. One of skill in the art would recognize that it may be desirable to provide a border of a few pixels or more around the edges of the rendered Web page for readability purposes and/or aesthetics. Additionally, depending on the scrolling scheme employed, a portion of the browser may be used for scroll bars or the like, such as shown in Figs. 7A, 8A, and 9A. Generally, depending on the underlying operating system (and possibly browser features), the width of the scroll bars may vary, no scroll bars may be displayed, or scroll bars may be overlaid over a portion of the browser's page rendering area, enabling the entire width of the display to be used for browser page rendering. Examples of operating systems and/or browser implementations with different scroll bar widths are shown below:

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NYT Web page as rendered on a Mozilla Firefox desktop browser running under the Microsoft Windows XP operating system

Sony Clié running Palm OS	Pocket PC running Windows CE OS
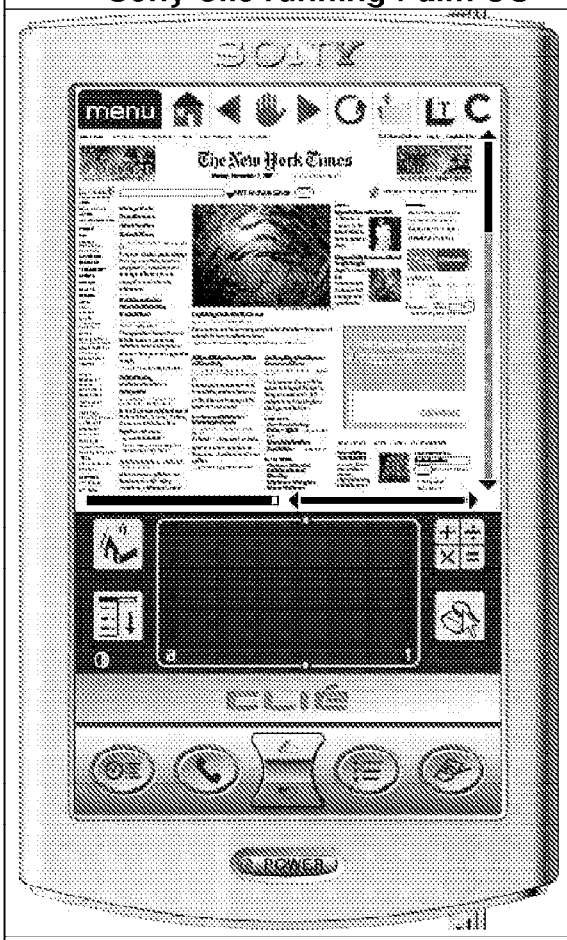	
Image 1A	**Image 1B**

Image 1A shows a Web page rendered by a SoftView™ browser on a Sony Clié running a version of Palm OS, while Image 1B shows a Web page rendered by a SoftView™ browser on a Pocket PC running a version of Windows CE OS. (It is noted that the principle developers of the SoftView™ browsers were Gary Rohrabaugh and Scott Sherman, the inventors of the claimed inventions in the present application, and the SoftView™ browsers employ the resolution-independent Web page scaling, zooming, and scrolling (panning) techniques disclosed in the application.)

As illustrated in Image 1A, and similarly illustrated in Figs. 7A, 8A, and 9A of

the present application (the Palm IIIc also ran on a version of Palm OS), the SoftView™ browser implementation running on a Palm OS employs a vertical and horizontal scroll bar with arrows at the ends that are wider than the bars themselves. Also, the completely filled horizontal scroll bars in each of Image 1A, Figs. 7A, 8A, and 9A, indicates that horizontal scrolling is not applicable, as the Web page view has been rendered to fit across the width of the browser display area.[2] The scroll bars used by Windows CE are somewhat different – they include separate arrow controls that are the same width as the scroll bars. In a manner similar to the Palm OS examples, the Web page in Image 1B is rendered to fit across the width of the browser display area. Of course, for operating systems/browsers that use overlaid scroll bars, the actual browser display area would be slightly larger. Thus, depending on the type of scroll bar implementation, the portion of the display available to render the Web page (*i.e.,* the browser display area) will vary a small amount. As noted above, border areas may also be desired for readability and/or aesthetics. Accordingly, the scope of the terminology "the Web page is rendered to fit across the display" is intended to cover each of the foregoing scroll bar schemes and/or border areas schemes and combinations thereof.

Scope of the terminology "determining an applicable scale factor to display at least one of the width and height of the Web page to fit across a display area of the display"

Each of claims 123, 238, and 330 recite the language, "determining an applicable scale factor to display at least one of the width and height of the Web page to fit across a browser display area of the display." The scope of this language is intended to cover a Web page being displayed such that at least one of the width and

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[2] It is noted that one of ordinary skill in the art would recognize the browser display area is the portion of the rendered display reserved for rendering the Web page content. This typically includes the display area that is not occupied by browser menu items and/or icons, tool bars (as applicable) and scroll bars (as applicable).

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height of the Web page occupies the browser display area (which will vary depending on the scroll bar scheme), with the optional use of small borders.

Scope of the terminology "the content corresponding to the selected column is rendered to fit across the display"

Each of claims 111, 190, 315, 365, 368, 371, 374, 377, and 380 recites the language, "the content corresponding to the selected column is rendered to fit across the display." The scope of this language is intended to cover the rendering of a column (in response to a zoom to column user input) such that the column is rendered to span the width of the applicable browser display area, with optional small borders (such as illustrated in FIG. 7B), in a manner similar to that discussed above when rendering a Web page.

Scope of the terminology "the display is re-rendered such that the image is rendered to fit across the display"

Each of claims 113, 136, 193, 318, 366, 369, 372, 375, 378, and 381 recites the language, "the display is re-rendered such that the image is rendered to fit across the display." The scope of this language is intended to cover the rendering of an image (in response to a zoom to image user input) such that the image is rendered to span the width of the applicable browser display area, with optional small borders (such as illustrated in FIG. 8B), in a manner similar to that discussed above when rendering a Web page to fit across the display. This does not imply that the claimed zoom to image operation will cause *all* images to be rendered to fit across the display, as the claim language clearly does not state this. One of skill in the art would recognize that when a selected image has a native resolution (*i.e.,* the 1:1 resolution for the image) that is less than the resolution of the applicable browser display area, it generally would be preferable to render the image at its 1:1 resolution, as rendering the image beyond this resolution (*e.g.,* "blowing" up the image) will generally result in a blurred image. For example, if an image has a

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native resolution of 150 x 150 pixels and the applicable browser display area is 300 pixels wide, it is preferable to display the image at 1:1 (150 pixels wide) rather than render the image to span the width of the display area. This is illustrated below:

USPTO Seal on http://www.uspto.gov/ at native 1:1 resolution (131 x 131 pixels)

Same USPTO Seal blown up 200% (262 x 262 pixels)

On the flip side, when the native resolution of an image is greater than or equal to the applicable display area, it is advantageous to render the image to fit the applicable display area, as claimed. An a manner analogous to that described above, "re-rending an image to fit across the display" is intended to cover situations where the image is rendered to span the width of the applicable display area, with the optional use of small borders.

Scope of the terminology "the content corresponding to the selected paragraph is

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rendered to fit across the display"

Each of claims 195, 367, 370, 373, 376, 379, and 382 recites the language, "the content corresponding to the selected paragraph is rendered to fit across the display." The scope of this language is intended to cover the rendering of paragraph content (in response to a zoom to paragraph user input) such that the content is rendered to span the width of the applicable browser display area, with optional small borders (such as illustrated in FIG. 9B), in a manner similar to that discussed above when rendering a Web page. Likewise, the terminology, "the content corresponding to the selected paragraph is rendered to fit across a display area of a display" recited in each of claims 114 and 320 is intended to have similar scope.

Scope of the terminology "in real-time"

The term "substantially" in "substantially in real-time" has been removed from each of claims 73, 79, 104, 109, 133, 135, 151, 156, 175, 179, 182, 188, 216, 221, 255, 257, 266, 270, 273, 279, 308, 313, 348, 350, 360, and 364. In general, "in real time" pertains to zooming and/or panning operations (as applicable) in each of these claims. The scope of the terminology "in real-time" is intended to pertain to the concept of real-time as perceived by humans when interacting with software, as opposed to the use of real-time to describe machine operations (*e.g.,* a real-time operating system), as argued in the December 9, 2007 response below (a portion of which is augmented to account for the removal of "substantially."

One of skill in the art would recognize the meaning of the terminology "real time" varies depending on the particular use context. For example, for an embedded real-time operating system or implementation, real-time might mean a timeframe in the millisecond or even microsecond range. In this context, the time context is machine time and real-time means instantaneous. In another use context, such as replying to e-mail, real-time is significantly longer. For example, many people refer to responding to e-mail in "real time" – this means the people respond

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to new e-mails as they come in, as compared with waiting until the end of the day or some other time to respond to e-mails in more of a batch manner. In a real time flight tracking context, the data that is provided may actually reflect a tracking position that is several seconds, or even minutes, old.

One of skill in the art would recognize that in a software user-interface context, which is applicable to the present claims, the use of real-time typically means the user is enabled to continue an operation in a non-disrupted manner, meaning the user doesn't have to wait a period of time of significance for the operation to be performed. In this context, real-time is perceived by the user's sense of time.

As defined by SearchSMB.com Definitions[3]

real time

DEFINITION- Also see real-time clock and real-time operating system.

Real time is a level of computer responsiveness that a user senses as sufficiently immediate or that enables the computer to keep up with some external process (for example, to present visualizations of the weather as it constantly changes). *Real-time* is an adjective pertaining to computers or processes that operate in real time. Real time describes a human rather than a machine sense of time.

In the days when mainframe batch computers were predominant, an expression for a mainframe that interacted immediately with users working from connected terminals was *online in real time.*

The inclusion of "substantially' in the use of a "substantially in real-time" context (as recited in the claims prior to the instant amendments) was to differentiate the claim from meaning it occurs instantaneously, which would be an erroneous interpretation under the proper use context. Rather, the operation is performed in a non-disrupted manner, as experienced by the user. For the purpose of a defined time period, "in real time" as used herein means the operation is performed in a few seconds or less.

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[3] http://searchsmb.techtarget.com/sDefinition/0,,sid44_gci214344,00.html

Under the Examiner's interpretation of the term "substantially" in general (as discussed above), the prior claims reciting "substantially in real-time" did not have the foregoing claim scope. Accordingly, there is no equivalence lost due to *Festo* estoppel, as the intended scope of these claims is the same as argued in the December 9, 2007 response.

Discussion of new claim terminology, "preserves the original page layout, functionality, and design of the Web page content."

In accordance with teachings disclosed in the present application (and its related applications incorporated herein), users of various devices, from handheld devices with small screens, to desktop PC's and laptops, to very large screen devices, are enabled to view and interact with Web pages in a manner independent of the screen resolution of such devices' built-in or associated display, while preserving the look and feel (*i.e.,* functionality) of browsing such pages with a conventional desktop browser. As a result, users are enabled to access millions of Web pages on various devices having different screen resolutions while providing a full Web browsing experience similar to that experienced when browsing the same Web pages using a desktop browser.

In order to clarify this result, Applicants have amended many of the claims to recite, in part, "preserves the original page layout, functionality, and design of the [HTML-based Web page] content." For example, amended independent claim 1 now recites (emphasis added),

71. A wireless device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

a display;

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memory; and

storage means, in which a plurality of instructions are stored that when executed by the processing means enable the wireless device to perform operations including,

rendering a browser interface via which a user is enabled to request access to an original Web page, the Web page comprising HTML-based Web content having an original format defining an original width and height of the Web page and an ***original page layout, functionality, and design of content on the Web page***;

retrieving the Web page via the wireless communication means, and translating at least a portion of the HTML-based Web content from its original format into scalable content that supports a scalable resolution-independent representation of the Web page that ***preserves the original page layout, functionality and design of the content defined by its original format*** when scaled and rendered; and

scaling the scalable content to render the Web page on the display such that a width of the Web page is rendered to fit across the display.

A discussion of operations pertaining to an exemplary use case of a device enabled by the presented application was presented in the December 9, 2007 response; for clarity, much of this description is repeated below, while some details are omitted for brevity. The operations are discussed in the context of the following FIG. 1.

The schematic drawing shows an exemplary infrastructure comprising well-known components for facilitating access to and delivery of Web pages. Web page content (*i.e.,* Web content) is served by servers that are accessed via the Internet, also commonly referred to as the World Wide Web (WWW). Accordingly, these servers are typically referred to as "Web" servers. More accurately, they are HTTP (Hypertext Transport Protocol) servers, as they serve content of various types using the HTTP protocol. FIG. 1 shows a pair of exemplary Web servers, including a New York Times

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(NYT) Web server and an Advertisement (ADV) Web server. It will be appreciated that literally millions of similar Web servers are connected to the Internet across the world, thus forming the World Wide Web.

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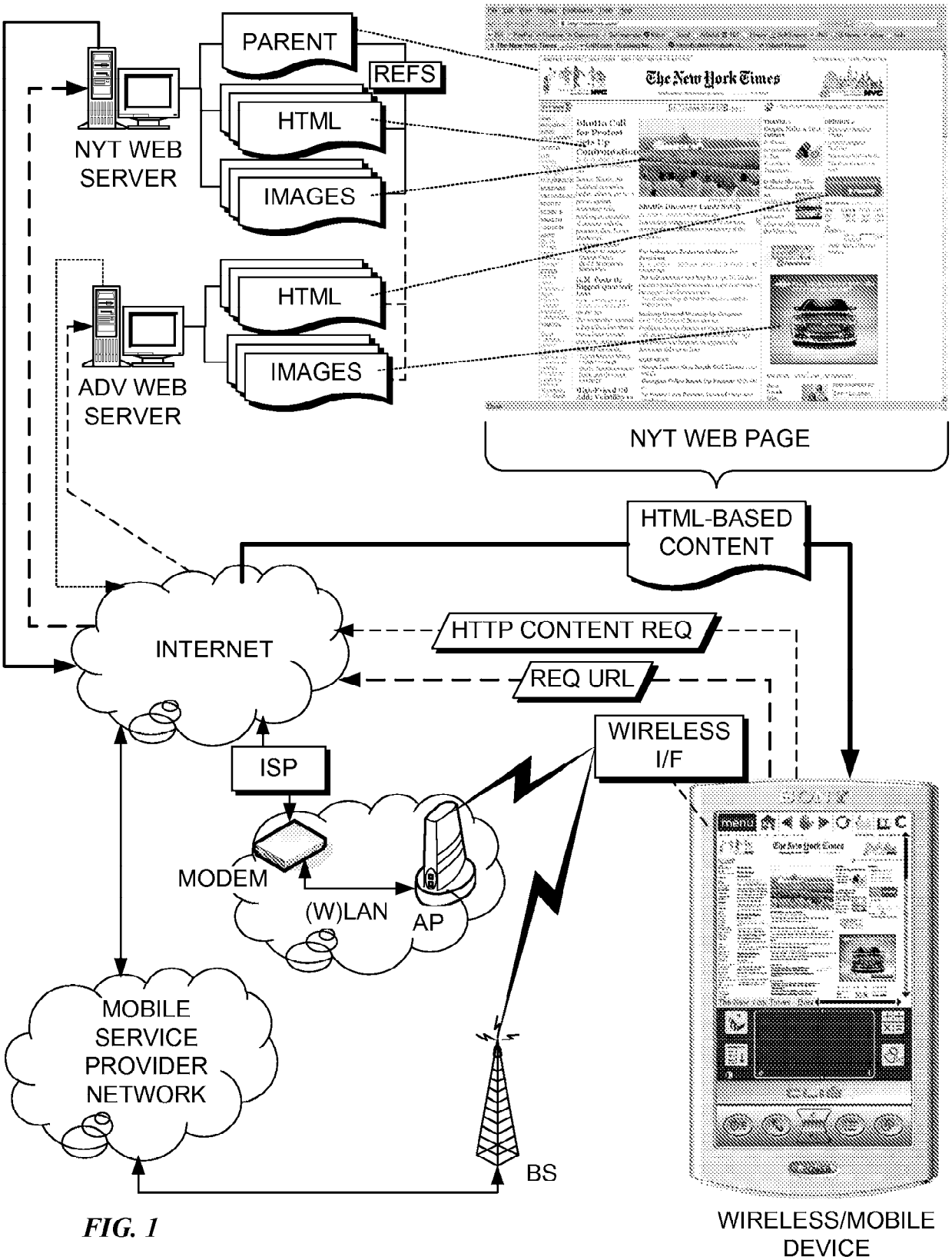

FIG. 1

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To access WWW web servers, users use client devices that are communicatively coupled to the Internet through applicable network infrastructure. In the desktop environment, desktop clients, such as personal computers and workstations, are typically coupled to a Local Area Network (LAN) via an Ethernet link to a LAN host device. (It is noted that some desktop clients may wirelessly connect to a Wireless LAN (WLAN), in a manner similar to that discussed below for wireless clients.) The LAN, in turn is usually connected to the Internet via network infrastructure provided by an Internet Service Provider (ISP). Connection between the LAN and the ISP is typically provided by some type of Modem (*e.g.,* Cable or xDSL Modem) or dedicated hardware (for larger customers, such as businesses). (It is also noted that many individual users still connect to their ISP through a telephone modem.)

Wireless and mobile devices, including those devices covered by the claims herein, typically connect to the Internet in one of the manners illustrated in FIG. 1, or otherwise described in the December 9, 2007 response. (Further details are omitted here for brevity.) By way of example but not limitation, wireless access to the Internet may typically be provided via a mobile service provider, or via other types of wireless connections, such as via WiFi or WIMAX connection, for example.

Now that the infrastructure of FIG. 1 has been described, we proceed with discussion of retrieving and processing the Web page content such that the Web page can be accessed via a wireless/mobile device. In the illustrated example, the process is initiated by a user desiring to access the New York Times (*i.e.,* and electronic version of the New York Times published to the Internet on a given day). This is facilitated by a browser in accordance with teaching of the present application running on the wireless/mobile device. The New York Times may be accessed via the Internet by downloading corresponding Web pages from the NYT Web server. More specifically, the New York Times home page may be accessed by entering the URL (Universal

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Resource Locator) www.nytimes.com via the browser's user interface.

As discussed above and in further detail in the present specification, Web pages comprise HTML-based content which may be stored in one or more documents commonly referred to as HTML documents. In addition, Web pages may include dynamically-generated content. Each Web page has a corresponding main or "parent" HMTL document that includes HTML code defining the Web page content layout, at least at some level. The parent HTML document may reference other HTML documents, as well as other content (such as image content) that further define the layout of content contained in the referenced documents. This may proceed in a hierarchical or nested fashion.

To access the Web page, the browser initiates an HTTP connection with the Web server hosting the Web page, and begins downloading the parent HTML document. Depending on how the Web server and/or Web page is configured, additional content (*i.e.,* beyond that included in the parent HTML document) referenced by the parent HTML document, may be retrieved by the Web page host server and then downloaded to the requesting client device, or a portion of this content may be downloaded by the client device via a separate connection. Generally, content that is hosted by a Web server or Web site is assembled by the Web server and downloaded to the client device. On the other hand, externally-referenced content (that is, content that is not stored on the Web server or Web site), is often left to the client device (*i.e.,* the browser) to retrieve.

An example New York Times home page (dated November 7, 2007, 2:22PM ET), as rendered by the Mozilla Firefox browser running on a desktop or laptop computer, is shown at the upper right-hand portion of FIG. 1. The same Web page is shown rendered on a Sony Clié using a SoftView™ browser at the lower right-hand portion of FIG. 1. Notably, the same HTML-based content defining the page layout, functionality, and design of the Web page content is downloaded by each of the Mozilla

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Firefox and SoftView™ browsers. Moreover, the same HTML-based content would be retrieved by other desktop browsers, such as Microsoft Internet Explorer, Apple Safari, and Opera browsers, to render the New York Times home page.

As discussed above, the Parent HTML document typically includes HTML code to define the overall layout of the Web page and its content. For example, the HTML code will define whether the Web page includes frames, and, if so, where those frames are located on the rendered page. Various content displayed on the Web page may be stored in the Parent HTML document and/or one or more other HTML documents referenced by the Parent HTML document. If the content is to be rendered in a frame referenced by the Parent HTML document but whose content is not defined within the Parent HTML document, the actual reference to the HTML document storing the content may be in the document defined by the frame reference. For example, for illustrated purposes, the content in the column with the heading "Bhutto Call for Protest Sets Up Confrontation" is depicted to be stored in an HTML document that is hosted by the NYT Web server, but is separate from the Parent HTML document.

Likewise, image content may be stored separate from the Parent HTML document. This is typically done since images, which often contain a large amount of data due to the nature of image data, make require significant download time, especially over a slow connection. By putting image content in (a) separate document(s), the basic page layout and text content can be rendered much faster. Typically, HTML code defining the page layout location of an image on the page may be used to place an image "placeholder" or other indicia on the screen prior to rendering of the image.

As discussed above, various portions of the Web page content may be stored on Web servers that are external to the Web page host server. This is often the case with advertisement content. Rather than have the advertisement content stored locally on each Web server, the advertiser will use an advertisement host site to store and serve

the advertisement content. For example, in FIG. 1, image data for rendering the "All New Chevy Malibu" advertisement is depicted as being stored in an image document on the Advertisement Web server.

Typically, externally referenced advertisement content is downloaded by the browser directly from the advertisement content host site, rather than from the Web page host site. The network location of the advertisement content host server is identified by parsing the retrieved HTML-based content, and an HTTP GET request is used to download the associated advertisement content from its host server.

Some Web pages may include "embedded" content hosted by an external site. For example, the New York Times Web page includes embedded content provided by Fidelity. Oftentimes, such embedded content may be dynamic in nature (that is, may change over time or differ depending on identification of the target user). Generally, embedded content may be retrieved by the browser from an external host site (*e.g.,* advertisement Web server depicted in FIG. 1[4]), or such content may be first retrieved by the Web page host site and served to the browser.

It is common terminology to refer to a browser "retrieving" or "downloading" a Web page. For example, upon entry of a new URL in the browser Web address box, the browser will download the Web page referenced by the URL. It is well understood that this doesn't imply that all of the content associated with the Web page must be retrieved or downloaded. Some of the content is typically used for search engine purposes, such as Metatag header information, or is otherwise not used for rendering purposes. In other cases, content may be referenced that is not supported by the requesting browser. For example, "Flash" content typically requires a Flash plug-in viewer (or built-in Flash support provided by some browsers); if the plug-in viewer is not loaded by the browser (or such support isn't built in), the Flash content cannot be

[4] It is noted that it would be likely the Fidelity content would be hosted by its own server that would be separate from the advertisement server; however, for simplicity, the advertisement is used for illustrative purposes.

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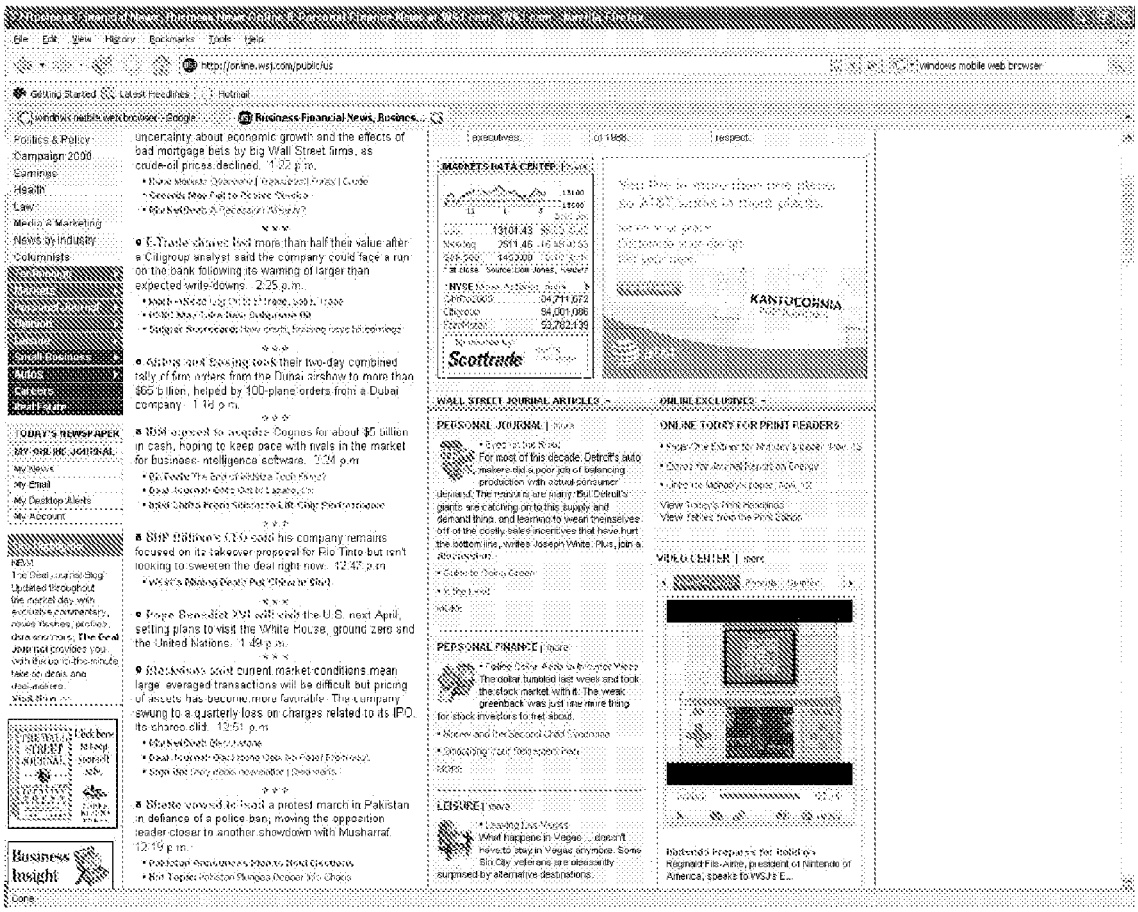
displayed. This is also true for TIFF images on the USPTO Web site. Unless the proper TIFF plug-in viewer is loaded, the TIFF images will not be displayed.

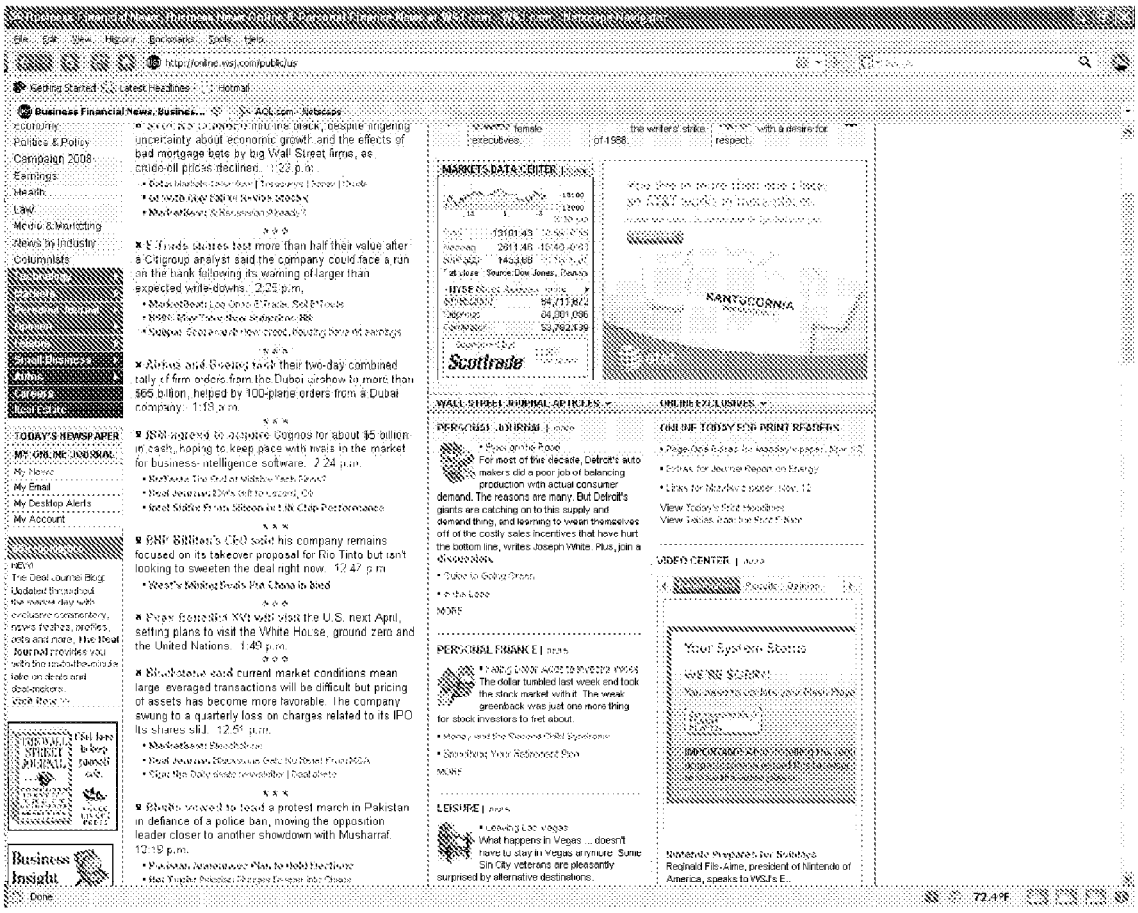
A similar situation exists with Active-X controls. In order to use the Active-X controls, the browser needs to provide support for Active-X controls. Since Active-X controls were developed by Microsoft, all recent versions of Microsoft Internet Explorer provided support for Active-X controls. Meanwhile, browsers from other vendors, such as Apple Safari, Mozilla Firefox, and Opera, do not support Active-X controls.

When a browser encounters content that is not supported "natively" by the browser, the browser will typically check to see if an appropriate plug-in is available. Depending on the browser and/or particular Web site, if an appropriate browser cannot be found, the browser or Web site may apprise the user of the situation and enable the user to download the plug-in. In other instances, the content is simply ignored. Thus, in some cases, the Web page may reference content that is never retrieved when the Web page is retrieved by the browser.

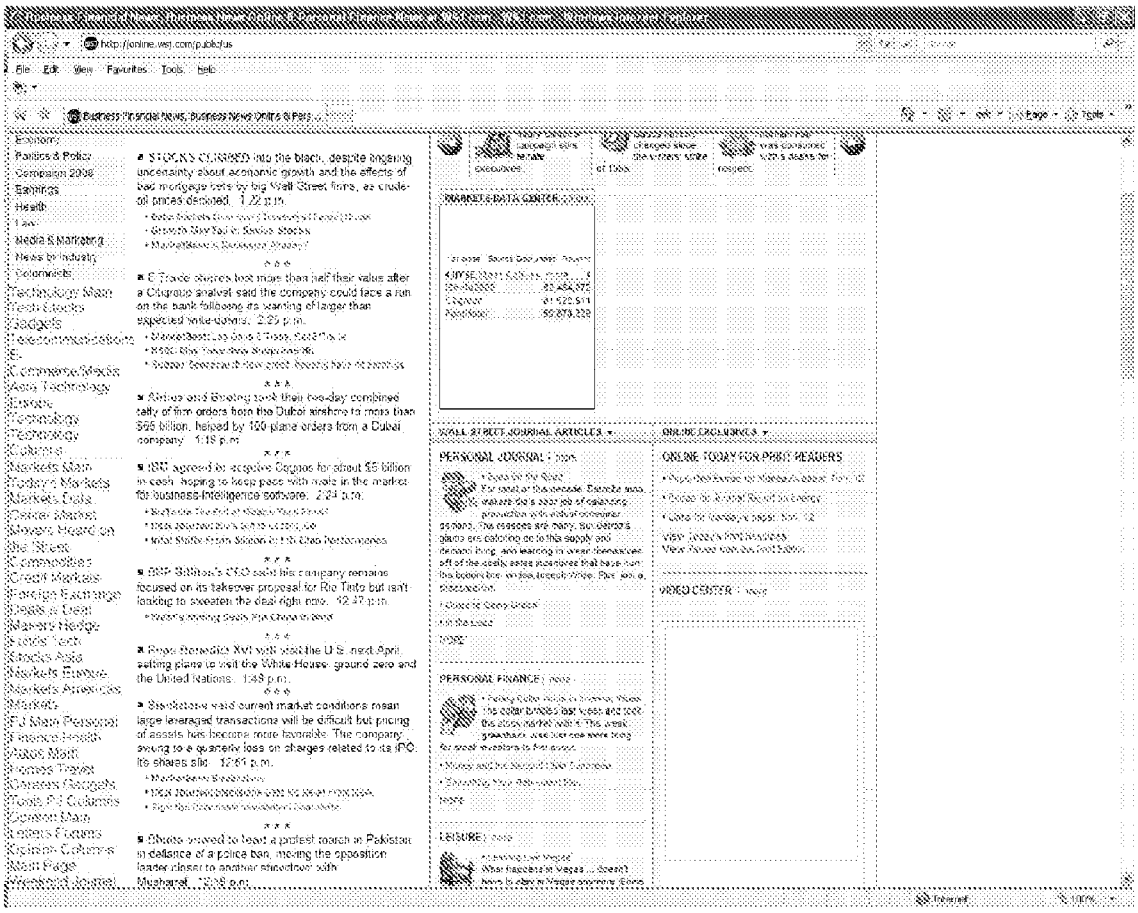
The three screen shots below respectively show the same Web page rendered on a Netscape Navigator 9 browser, a Mozilla Firefox 2.0 browser, and an Internet Explorer 7 (IE 7) browser. In this particular instance, certain features of the IE7 browser are disabled for security reasons. It is also missing some plug-ins. Each of these browsers is running on the Microsoft Windows XP operating system.



Mozilla Firefox 2.0 Browser



Netscape Navigator 9 Browser



Microsoft Internet Explorer 7 Browser

It will be observed that the Web page is rendered substantially the same by the Netscape Navigator 9 and FireFox 2 browsers, while portions of the Web page are rendered in a different manner by the IE 7 browser (notably the left-hand column). The similarity between Netscape and Firefox is expected since they both use the same Mozilla core rendering code, while IE 7 uses Microsoft's rendering code. It is further noted that some Web pages are coded to account for different browser features. For example, some Web pages will have provisions for Active-X controls for pages to be viewed by Internet Explorer browsers, while possibly including provisions for alternate mechanisms when using other browsers.

This example Wall Street Journal Web page includes various embedded ***non-***

HTML content requiring support of one or more plug-ins[5] or otherwise built in support for rendering ***non-HTML*** content of a particular content type. In particular, the VIDEO CENTER object in the lower right-hand corner requires an Adobe (formerly Macromedia[6]) Flash viewer for rendering Flash content, which uses vector and raster graphics, a native scripting language called ActionScript and bidirectional streaming of video and audio.[7]

It is noted that there is a message in the VIDEO CENTER box in the Web page rendered by the Netscape Navigator 9 browser indicating that the browser needs to update its Flash player. In the case of the Firefox 2 browser, either the appropriate Flash player was found or an appropriate level of support for Flash content is built into the browser. In this case, the Flash .SWF file including data to render a video image of a Nintendo DS console is retrieved from a corresponding host server and rendered by the browser (if it has built-in support) or Flash player, as applicable. In the case of the Netscape Navigator 9 browser, the appropriate Flash player plug-in is not available; accordingly, the video image of the Nintendo DS console is not retrieved.

In the case of the particular IE 7 browser configuration used to obtain the IE7 screen shot, the Flash player is either missing or blocked. As a result, the aforementioned VIDEO CENTER image is missing (just an empty box is rendered, as defined by corresponding HTML). Moreover, the IE 7 browser did not render a message indicating the Flash player needed to be upgraded. In addition, the source for

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[5] As defined by Wikipedia, A **plugin** (**plug-in**, **addin**, **add-in**, **addon** or **add-on**) is a computer program that interacts with a host application (a web browser or an email client, for example) to provide a certain, usually very specific, function "on demand". Applications support plugins for many reasons. Some of the main reasons include: enabling third-party developers to create capabilities to extend an application, to support features yet unforeseen, reducing the size of an application, and separating source code from an application because of incompatible software licenses.

[6] Macromedia is now a division of Adobe Systems

[7] For more details on the Adobe Flash Player, see, *e.g.*, http://en.wikipedia.org/wiki/Adobe_Flash_Player

the AT&T advertisement in the upper right-hand portion is blocked via a security setting, resulting in this portion of the page being rendered using the same background color as the frame it (would be) embedded in.

A point for discussing the foregoing is to make it clear that,

1. Even when rendering the same Web page source content (*i.e.*, the HTML code definition of the Web page), conventional Web browsers may not render the (non-scaled) Web page identically. Scaling Web pages may also result in alternation of the page layout. However, under aspects of embodiments of the invention (such as claimed in claim 71) the overall layout, functionality and appearance (design) of the scaled Web pages defined by the HTML code for the Web page are preserved.
2. Plug-ins may be required to render ***non-HTML content*** that is embedded within some web pages or used in a separate window launched from a web page. Notably, the plug-in content is not a Web page, but rather a specific type of content requiring a corresponding plug-in application to render the content.

The new claim language introduces the term "functionality." Preserving functionality generally pertains to preserving the interoperability of various HTML-based Web page content, such as hyperlinks and UI controls such as input forms defined via corresponding HTML-based code. It is noted that the HTML code defining a Web page's overall layout, functionality and design does not define how a user interaction with the Web content is to be supported, but rather defines the existence of a corresponding function within the Web content to support the interaction. For example, a hyperlink definition within a Web page merely defines a link (hyperlink reference of *href*) to corresponding content, it does not define how the hyperlink associated control is to appear on the screen nor how the hyperlink is to be activated. That is up to the browser's implementation, which varies by browser. For example, some browsers

underline text content associated with a hyperlink, while others change the appearance of a pointer when over a control (*e.g.,* text content) associated with a hyperlink (or otherwise change the appearance of such content). Moreover, how the hyperlink is activated is not defined by the corresponding HTML-based definition, but again is left to the browser implementation. Accordingly, preserving content functionality means that functionality defined by corresponding HTML code (*e.g.,* activation of a hyperlink in the present example) is supported, without limiting the particular user interface for how that activation is facilitated.

In the implementation of a zoomable browser, it may be desirable to change user interface behavior depending on a current use and/or view context. For example, the hyperlink controls of a conventional Web page designed to be viewed with a desktop browser are typically activated via the same user interface input (*e.g.,* clicking with a mouse), since all of the hyperlinks controls (on at least well-designed Web pages) are (presumably) designed to be viewable on the desktop browser (at least viewable to most users). In contrast, when the same page is rendered so as to fit on a handheld device's display, corresponding hyperlink controls may not be readable. As a result, it may be advantageous to implement a context-based user interface that may result in a different action for the same user input depending on a current user and/or zoom context. For example, under the zoom to column, image, and paragraph user interface features disclosed in the present application, touching proximate to content associated with a hyperlink control may or may not activate the hyperlink control, depending on a current zoom level. By way of illustration, when touching content proximate to a hyperlink control that is also contained within a column when in a zoomed-out view, such as a full page view, the browser may interpret the input as an input to zoom to the column rather than an input to link to a hyperlinked reference associated with the content, particularly when the content is no readable in the current view.

Preserving the design of the Web page's HTML-based content corresponds to

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rendering the Web page at different zoom levels and panned view in accordance with its original design, which includes such things as type fonts, separator bars, tables, *etc.* Again, the Web page's design is a matter of interpretation by the particular browser, as, for example, the same content (as defined by its corresponding HTML definition) may be rendered using different colors by different browsers. Similarly, browsers may substitute fonts for fonts (as defined by corresponding HTML code) that are not supported by the browser or operating system. With respect to the scope of the terminology "preserving the [overall layout, functionality, and] design" of the content, this refers to preserving the design as interpreted by the browser[8] while at different zoom levels and panned views, as opposed to rendering the content identically to how it is rendered by a particular desktop browser that may interpret the page design differently.

With further respect to dependent claims 126, 159, 241, 260, 333, and 353, design aspects of a Web page as defined by cascaded style sheet (CSS) data included in the Web page definition are also preserved.

A similar context exists with respect to "preserving the overall layout [, functionality, and design]" of the content. Again, the page layout (to be preserved) is determined as interpreted by the browser, rather than as a comparison to how it is rendered by a particular desktop browser. As described above and in other remarks, browsers often do not render Web pages derived from the same HTML-based definition identically. Accordingly, one of ordinary skill in the browser art would not expect Web pages rendered using a browser in accordance with the teachings disclosed in the present application (*e.g.,* the SoftView™ browser) to render pages as *exact* scaled replicas of the same page rendered by another browser, such as Internet Explorer or Safari, for example. Also as discussed previously, due to rendering limitations such as

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[8] More particularly, differences in page interpretation will generally be a function of the browser's rendering engine (*a.k.a.* layout engine).

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fixed size fonts, renderings of the same page when viewed at different zoom levels may result in small variations, as opposed to an exact scaled version of the same content (as if viewed by a magnifying glass). While there are implementations that may produce this exact result, such results are not required by the scope of the terminology "preserving the overall layout ... of the content."

Each of claims 174, 180, 265, 271, and 359 include claim elements that likewise recite "preserves the overall layout, functionality, and design" of the [HTML-based Web] content, while each of claims 99, 143, 211, and 337 recite "while preserving the overall layout, functionality, and design" of the [HTML-based Web] content. Accordingly, the claim scope of the related elements in each of these claims is to be interpreted in a similar manner that that discussed above with respect to the use of similar terminology in claim 71.

Each of claims 76, 185, and 276 recite, "wherein the original page layout, functionality, and design of the Web page content are preserved at each of the different resolutions," while each of claims 128, 244, and 303 recite, "wherein the original page layout, functionality, and design of the Web page content are preserved regardless of a zoom level of the Web page." Accordingly, the claim scope of the related elements in each of these claims is to be interpreted in a similar manner that that discussed above with respect to the use of similar terminology in claim 71.

Discussion of new claim terminology, "enables [enabling] a user to view, zoom, and pan the HTML-based Web page content of billions of Web pages in a manner that preserves the original layout, functionality, and design of the Web page content . . ."

Each of claims 244, 303, 359, 383-389, and 393 have been amended to now recite, in part, "enables" or "enabling" "a user to view, zoom, and pan the HTML-based Web page content of billions of Web pages in a manner that preserves the original layout, functionality, and design of the Web page content . . ." The scope of the

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terminology "in a manner that preserves the original layout, functionality, and design of the Web page content" should be in accordance with that discussed above for similar terminology in claim 71. In addition, in each of these claims the terminology "substantially any Web page" has been replace by "billions of Web pages" to be more definite.

At the time of the filing of the non-provisional parent application (US 09/878,097 – issued as US 7,210,099) (mid-2001) to which the present application claims priority, there were on the order of a several billion web pages associated with the "World Wide Web" and accessible via the Internet, with the specific number being somewhat indeterminable. As stated in paragraph [0093] of the present application, ". . . users are enabled to view the entire content of billions of existing Web pages using hand-held devices in a simple and reasonable way." This statement was based on the observation that, when tested, a browser incorporating the principles of the invention disclosed in the present application enabled the test user to browse, zoom, and pan nearly every Web page that was tested, while preserving the original page layout, functionality, and design of the Web page.[9] Based on the inherent principles and teachings disclosed, this result was expected, as the rendering engine employed by the browser (the Mozilla rendering engine) was based on the same rendering engine used in one of the two most dominant browsers at the time (i.e., the rendering engine used by the Netscape Navigator browser). (It is respectfully noted that the use of the Mozilla rendering engine in an embodiment in the present disclosure is merely exemplary, and not limiting.) Since Netscape Navigator was a dominant browser at the time, many if not most Web pages were designed to support browsing with Netscape Navigator

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[9] Of approximately 500 of the most browsed (at the time) Web pages that were tested, only a handful did not work. Of particular note was a Sony Web site that was entirely flash-based (and thus not HTML-based). It is also noted that some Web pages were/are designed to be browsed by a specific browser, such as Internet Explorer; such pages may not render and/or function properly under other browsers.

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(either by intent and/or based on good HTML coding practices for manually designed pages, or through use of one of many Web page design tools that generated HTML that could be properly interpreted by Netscape Navigator).

One of skill in the art will recognize that the principles and teachings disclosed in the present application may be applied in a browser implementation employing one of many different rendering engines, such as but not limited to today's version of the Mozilla rendering engine (code-named "Gecko") used by the Firefox and Netscape Navigator browsers, the rendering engine employed by Microsoft Internet Explorer (code-named "Trident" (*aka* MSHTML)), or the Webkit rendering engine use by Apple's Safari browser. Since each of these rendering engines are capable of rendering the vast majority of today's Web pages[10], a browser implementing such a rendering engine in combination with the principles and teachings disclosed in the present application would likewise be capable of rendering the vast majority of billions[11] of today's Web pages while preserving the page layout, functionality, and design of the Web pages under various zoom levels and panned views.

Conclusion

In view of the amendments and the remarks above, Applicant respectfully submits that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues requiring adverse action in any of the

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[10] One of skill in the browser art would recognize that rendering engines do not render Web pages completely by themselves, but rather employ various support functions provided by the host operating system for particular rendering operations. Among these support functions is support for rendering text in various languages. The particular languages that are supported will vary depending on the operating system and/or extensions to the operating system (or otherwise add-on functionality provided by the browser) for rendering text of a particular language. If support for rendering text in a given language via either the operating system or a particular extension is not available, the text content in such a language will not be able to be rendered on pages that include such text content.

[11] Depending on the source, it is estimated there are currently 16-48 billion Web pages available via the Internet.

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claims now pending in the application, it is requested that the Examiner telephone R. Alan Burnett at (425) 417-4729 or (425) 562-0923 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

LAW OFFICE OF R. ALAN BURNETT, PS

Date: May 20, 2007 /S/ R. Alan Burnett

R. Alan Burnett
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Allowable Subject Matter

Claims 71-92; 94-242; 244-335; 337-389 and 391-393 are allowed.

Interpreting the claims in light of the specification, Examiner finds the claimed invention is patentably distinct from the prior art of record, ***Chithambaram*** et al. US006674445B1 -Provisional No.60/159,069 filed 10/12/1999, in view of ***Roy*** et al. US006642925B2 -Continuation of No.08/757,706 filed 10/30/1996, further in view of ***Blumberg*** US006886034B2 -Continuation of No.09/267,951 filed 03/11/1999, which set forth in the previous rejection mailed on 10/23/2007.

Under the broadest reasonable interpretation of the claimed limitation consistence with the Applicant's Specification, the prior art of record fail to teach all of the Applicant's claimed limitations. The claimed invention advantageously provides a finer level of detail when displaying HTML Web pages, designed for desktop computers, on a "small-screen" device, such as a cell phone and/or a PDA.

In particular, the claimed invention takes **HTML**-based Web content **in its original format** (which defines the page layout, **functionality** and design of the web page) and ***translates*** the HTML-based Web content into "**scalable content**" that supports a scalable, **resolution-independent** representation of the HTML-based Web content. In other words, the claimed invention ***converts*** an **HTML** web page into a "**vector graphics**" web page and displays the web page on a PDA. When viewing the "vector graphics" web page on the PDA, the user may ***zoom in and out*** of the

displayed web page, in order to increase/decrease the size of the web page components that are displayed on the PDA. Addtionally, the claimed invention preserves the **functionality** of the **original HTML web page** ***after*** it has been ***translated*** into a **"vector graphics" web page** and displayed on the PDA. See Applicant's Remarks on Pages 91-94 of the Response dated 05/20/2008. See also independent claims 71, 99, 128, 143, 174, 180, 211, 244, 265 , 271, 303, 337 and 359.

The Examiner asserts that the claims overcome the prior art of record when the limitations are read in combination with the respective claimed limitations in their entirety.

The dependent claims, further limiting the independent claims, are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Exhibit 3F

BRIEF SUMMARY OF THE INVENTION

[0007] In accordance with aspects of the invention, mobile devices enabled to support resolution-independent scalable display of Internet (Web) content to allow Web pages to be scaled (zoomed) and panned for better viewing on smaller screen sizes are disclosed. The mobile devices employ novel processing of original Web content, including HTML-based content, XML, cascade style sheets, etc. to generate scalable content. The scalable content and/or data derived therefrom are then employed to enable the Web content to be rapidly rendered, zoomed, and panned. Display lists may also be employed to provide further enhancements in rendering speed.

[0008] According to further aspects, the mobile devices employ touch-sensitive display screens that enable users to provide various inputs to control display of content within Web pages. Exemplary user inputs include tap-based inputs to selectively zoom in on columns, images, and paragraphs. Users can also define a window to zoom in on via the touch-sensitive display.

[0009] Other features of the present invention will be apparent from the accompanying drawings and from the detailed description that follows.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The appended claims set forth the features of the invention with particularity. The invention, together with its advantages, may be best understood from the following detailed description taken in conjunction with the accompanying drawings of which:

[0011] Figure 1A is a block schematic diagram illustrating a first exemplary system infrastructure in accordance with the present invention in which content translation services are performed by a third-party proxy service that translates content requested from a client that is retrieved from one or more network resources into a scalable vector representation and delivers the translated content to the client;

[0012] FIGURE 1B is a block schematic diagram illustrating a second exemplary system infrastructure in which the translation of content is performed at a content provider's web site and delivered directly to the requesting client;

[0013] FIGURE 1C is a block schematic diagram illustrating a third exemplary system infrastructure in which content received from one or more network sources is translated into a scalable vector representation at the client;

[0014] FIGURE 2A is a flowchart illustrating how data is retrieved, processed and transferred in accordance with the system infrastructure of FIGURE 1A;

[0015] FIGURE 2B is a flowchart illustrating how data is retrieved, processed and transferred in accordance with the system infrastructure of FIGURE 1B;

[0016] FIGURE 2C is a flowchart illustrating how data is retrieved, processed and transferred in accordance with the system infrastructure of FIGURE 1C;

[0017] FIGURE 3 is a block schematic diagram illustrating an exemplary architecture corresponding to the proxy server of FIGURE 1A;

[0018] FIGURE 4A is a representation of an exemplary web page has displayed on a conventional browser;

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functions of a component with reference to one or more of the infrastructures generally may apply to the other infrastructures as well, unless specifically noted otherwise.

[0048] A first of exemplary system infrastructure 10A for implementing the invention is shown in FIGURE 1A. Infrastructure 10A enables various clients, including wireless devices such as a cellular phone 12, a wireless-enabled PDA 14, and a wireless-enabled laptop computer 16, as well as landline computers 18, 20, and 22, to request content that is accessible via a network such as the Internet 24 to be retrieved from selected network resources, including web servers 26 and 28 and an FTP site 30, wherein the content is translated into a scalable vector representation (*e.g.*, SVF, also referred to herein as "vectorized content") through use of a proxy server 32 and sent to the requesting client. Upon being received by the client, the vectorized content is processed and rendered using a thin client to enable a user to view the content on the client device.

[0049] With reference to the flowchart of FIGURE 2A, the foregoing process is initiated by a client in a block 100, wherein the client submits a request to proxy server 32 to retrieve and convert selected content. As depicted by a transfer path 34, this comprises sending data 36, which includes content network location indicia from which the content can be retrieved and proxy server network location information by which the content request may be delivered to over Internet 24 to proxy server 32. Typically, it will be desired to retrieve a particular web page. Accordingly, the content network location indicia will comprise a URL (uniform resource locator) for the web page. Similarly, the proxy server network location information may also comprise a URL corresponding to a network access point for the proxy server. Optionally, the location information may comprise a network IP address for one or both of the content location and the proxy server location. If the content is to be retrieved from an Internet resource, the request will typically be sent using the HyperText Transfer Protocol (HTTP) over the TCP/IP transport.

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accessible HTML documents 48 and graphic images 50, which may be accessed via web server 28. If the external object is a graphic image, there is no further processing of the object at this point. If the object is an HTML document, the functions provided by blocks 106 and 108 are repeated. Generally, this set of processing functions is repeated iteratively until all of the external objects are retrieved. However, as described below, there will be some instances in which certain objects will be retrieved at a later point in time. In addition to content stored on web servers that are accessed using HTTP, content may also be retrieved from various network sites using the File Transfer Protocol (FTP), such as FTP documents 51, which are accessed via FTP server 30.

[0055] In general, HTML documents and graphic files will be sent as packetized data streams using HTTP over one or more TCP/IP network connections, wherein the data streams will usually be asynchronous. Retrieval of HTML documents and graphic files corresponding to the embedded references will usually require additional transfer time. Furthermore, graphic content oftentimes comprises significantly larger file sizes than HTML content, leading to significant transfer times in some instances. For simplicity, the transfer of the various HTML documents and graphic files for the content request are depicted by HTML documents 52 and graphic documents 54, which are transferred over a transfer path 56.

[0056] When the HTML documents and graphic content are received by proxy server 32, a scalable vector representation of the web page is generated in a block 114 by an HTML translator 58. In brief, HTML translator 58 translates HTML, XML, and cascaded style sheet (CSS) layout content into a scalable vector representation, such as SVF. Details of the HTML translation process are contained below. In addition, the graphic images are converted into a compressed bitmap format in a block 116 by a graphics translator 60. The vectorized content 62 and compressed bitmaps 64 are then streamed back to the client (*i.e.*, computer 18) in a block 118, as depicted by a transfer path 66. In one embodiment, the content portions are sent in separate streams using

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multiple connections. In another embodiment, the content portions are sent via a multiplexed stream using a single connection. As the vectorized content and compressed bitmap data are received by the client device, they are processed by a thin client 68 running on the client device, whereby a representation of the original web page content may be rendered on the client device's display screen at various user-selectable scaled resolutions and pan offsets in a block 120, thereby enabling a user to more clearly see an overview or details in the web page. Further details of the client side processing are provided below.

[0057] As discussed above, wireless clients may also access the vectorized network (*e.g.*, web site) content provided via proxy server 24. The majority of this process is identical to that described above for land-line clients (*e.g.*, computers 18, 20, and 22), except for provisions required for sending data to and receiving data from wireless devices. In general, most wireless devices will access the Internet via a wireless service provider (*i.e.*, a wireless telecommunications carrier) that is particular to that wireless device. Accordingly, a portion of the transmission path to and from proxy server 24 will comprise infrastructure provided by that service provider and/or shared with other service providers. For simplicity, this infrastructure is shown as a cellular tower 70 and a service provider data center 72, although it will be understood by those skilled in the art that the connection path may comprise additional infrastructure components, including appropriate gateways and routers, that enable wireless devices to access proxy server 24.

[0058] In some implementations, there will be no special formatting/protocol services that need to be performed by proxy service 24 – from the viewpoint of the proxy service, it will be immaterial whether the client is a land-based or wireless client; the special handling provisions for wireless devices will be handled entirely by the service providers infrastructure transparently at both ends of the communications path. In other instances, it may be desired or necessary to reformat the data content delivered to the

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generate a scalable vector representation of the original page content. First, in a block 156, a datum point is defined for the page and the bounding box for each object. For example, as shown in FIGURE 4C, a rendered page datum 262 is defined to be coincident with the upper left hand corner of the display frame of the rendered page for the web page. Generally, any point on the page may be used as the page datum – the only requirement is that the page datum that is selected is used consistently throughout the process. The use of the upper left hand corner of the display frame is advantageous since the location of the first object encountered in the HTML code for a page is located relative to this corner.

[0084] In general, the datum points for each object may also be located any place on the object, as long as the object datum points are used in a predictable manner. For example, as depicted in FIGURE 4C, various datum points for corresponding objects are defined to be coincident with the upper left hand corner of the bounding box for that object, wherein the object's datum point shares the root reference number of the object with an appended "C."

[0085] Once the page's datum point and an object's datum point are known, a vector between these points is generated for each object in a block 158. With reference to FIGURE 4D, in one embodiment, wherein the page datum point corresponds to the upper left and corner of the display frame and is assigned an XY value 266 of 0,0, the vector for a given object may be stored as the XY value of the datum point of that object relative to 0,0, such as a value of 150, 225 (ref. num. 268) for a vector 250D pointing to an object datum 250C, and a value of 150, 425 (ref. num. 270) for a vector 252D pointing to an object datum 252C. In another embodiment, each vector may be stored as XY data relative to a 0,0 datum point corresponding to the upper left hand corner of the frame the object belongs to. For example, a vector 250D' from a frame datum 214D to object datum 250C is stored as 20, 200 (ref. num. 268'), while a vector 252D from frame datum 214D to object datum 252C is stored as 20, 425. In this embodiment, offset

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CLAIMS

What is claimed is:

1. A mobile device, comprising:

a processor,

a wireless communications device operatively coupled to the processor, to facilitate communication with a network via which Web content may be accessed;

a touch-sensitive display;

a memory, operatively coupled to the processor; and

storage means, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile phone to perform operations including,

enabling a user to request to access a Web page having an original format defining an original page layout and attributes;

retrieving HTML-based Web content associated with the Web page defining an original page layout of content on the Web page;

translating the HTML-based Web content to produce scalable vector-based page layout information; and

employing the scalable vector-based page layout information and/or data derived therefrom to,

render at least a portion of the Web page on the touch-sensitive display using a first scale factor; and

re-render the Web page in response to associated user inputs to enable a user to iteratively zoom in and out a display of the Web page.

2. The mobile device of claim 1, wherein the device comprises a mobile phone.

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13. The mobile device of claim 1, wherein execution of the instructions performs further operations comprising enabling a user to view a column of the Web content at a higher resolution than a current resolution by tapping on the column via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is displayed substantially across the touch-sensitive display.

14. The mobile device of claim 13, wherein the content of the column is reformatted to fit characteristics of the touch-sensitive display when the display is re-rendered.

15. The mobile device of claim 1, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to view an image at a higher resolution than a current resolution by tapping on the image via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that the image is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

16. The mobile device of claim 1, wherein execution of the instructions performs further operations comprising enabling a user to view a paragraph of the Web content at a higher resolution than a current resolution by tapping on the paragraph via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

17. The mobile device of claim 16, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

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generating a bounding box for each object, the bounding box representing a portion of a rendered display page occupied by the object's associated group of content.

22. The mobile device of claim 18, wherein execution of the instructions performs further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display in memory.

23. The mobile device of claim 22, wherein execution of the instructions performs further operations comprising:

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan corresponding to a rendered display of the Web content desired by a user;

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box; and

applying an appropriate scale factor to the content to render the display.

24. The mobile device of claim 1, wherein the scalable vector-based content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

25. The mobile device of claim 1, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

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determining an applicable scale factor to display at least one of the width and height of the Web page substantially across a display area of the touch-sensitive display; and

employing the scale factor that is determined as the first scale factor.

26. The mobile device of claim 1, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

27. A mobile phone, comprising:

a processor,

wireless communications means operatively coupled to the processor, to facilitate communication with a mobile service provider network via which Web content may be accessed;

a touch-sensitive display;

a memory, operatively coupled to the processor; and

storage means, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile phone to perform operations including,

rendering a browser interface via which a user is enabled to request to access a Web page having an original format defining an original page layout and attributes;

retrieving Web content associated with the Web page;

translating at least a portion of the Web content from its original format into scalable vector-based content that supports a scalable resolution-independent display of the content that substantially retains the original page layout and attributes of the content defined by its original format when rendered;

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employing the scalable vector-based content to render at least a portion of the Web page on the display using a first scale factor.

28. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input made via the touch-sensitive display.

29. The mobile phone of claim 28, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

30. The mobile phone of claim 27, wherein the Web content includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink via the touch-sensitive display; and, in response thereto,

retrieving and translating the Web content associated with the hyperlink to produce additional scalable vector-based content; and

employing the additional scalable vector-based content to render the Web content associated with the hyperlink on the touch-sensitive display.

31. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising:

parsing markup language code to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for a plurality of objects, including text objects, graphic layout objects, and/or graphic image objects included in the Web page;

defining a primary datum corresponding to the original page layout; and,

for each object,

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defining an object datum corresponding to the layout location for the object;

generating a vector from the primary datum to the object datum for the object; and

creating a reference that links the object to its corresponding vector.

32. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling the Web content to be displayed at different resolutions by scaling the scalable vector-based content to re-render the display in response to associated user inputs.

33. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising returning the display of the Web content to a previous view in response to a corresponding user input made via the touch-sensitive display.

34. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the Web content in response to a corresponding user input made via the touch-sensitive display.

35. The mobile phone of claim 34, wherein execution of the instructions performs further operations comprising enabling the display of the Web content to be panned substantially in real-time.

36. The mobile phone of claim 27, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable vector-based content is scaled when rendered so as to produce a display having a different aspect ratio.

37. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling a user to view a column of the Web content at a higher resolution than a current resolution by tapping on the column via the touch-

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sensitive display, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is displayed substantially across the touch-sensitive display.

38. The mobile phone of claim 37, wherein the content of the column is reformatted to fit characteristics of the touch-sensitive display when the display is re-rendered.

39. The mobile phone of claim 27, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to view an image at a higher resolution than a current resolution by tapping on the image via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that the image is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

40. The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling a user to view a paragraph of the Web content at a higher resolution than a current resolution by tapping on the paragraph via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that content corresponding to the selected paragraph is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

41. The mobile phone of claim 40, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

42. The mobile phone of claim 27, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

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mapping the object vectors and associated bounding boxes to a virtual display in memory.

47. The mobile phone of claim 46, wherein execution of the instructions performs further operations comprising:

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan corresponding to a rendered display of the Web content desired by a user;

determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and,

for each of such object bounding boxes,

retrieving content associated with that object bounding box; and

applying an appropriate scale factor to the content to render the display.

48. The mobile phone of claim 27, wherein the scalable vector-based content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

49. The mobile phone of claim 27, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

determining an applicable scale factor to display at least one of the width and height of the Web page substantially across a display area of the touch-sensitive display; and

employing the scale factor that is determined as the first scale factor.

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61. The mobile device of claim 60, wherein execution of the instructions performs further operations comprising enabling the display of the Web content to be panned substantially in real-time.

62. The mobile device of claim 51, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the scalable content and/or data derived therefrom is scaled to render a display having a different aspect ratio.

63. The mobile device of claim 51, wherein execution of the instructions performs further operations comprising enabling a user to view a column of the Web content at a higher resolution than a current resolution by tapping on the column via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that content corresponding to the selected column is displayed substantially across the touch-sensitive display.

64. The mobile device of claim 63, wherein the content of the column is reformatted to fit characteristics of the touch-sensitive display when the display is re-rendered.

65. The mobile device of claim 51, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to view an image at a higher resolution than a current resolution by tapping on the image via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that the image is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

66. The mobile device of claim 51, wherein execution of the instructions performs further operations comprising enabling a user to view a paragraph of the Web content at a higher resolution than a current resolution by tapping on the paragraph via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that content

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corresponding to the selected paragraph is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

67. The mobile device of claim 66, wherein the content of the paragraph is reformatted to fit characteristics of the display area when the display is re-rendered.

68. The mobile device of claim 51, wherein the Web page includes text, layout attributes, and images, and wherein execution of the instructions performs further operations comprising:

receiving content corresponding to the text and layout attributes via a first connection; and

receiving content corresponding to at least one image via a second connection.

69. The mobile device of claim 51, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions performs further operations comprising:

building a display list via use of the scalable content and rendering the display list on a virtual display in the dynamic memory; and

scaling the display list to re-render the display of the Web page.

70. The mobile device of claim 51, wherein execution of the instructions performs further operations comprising:

parsing HTML-based code corresponding to the received Web content to determine the original page layout of the content on the Web page;

logically grouping selected content into objects;

defining a primary datum corresponding to the original page layout; and,

for each object,

defining an object datum corresponding to a layout location datum for the object's associated display content;

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74. The mobile device of claim 51, wherein the scalable content includes scalable text content, and wherein execution of the instructions performs further operations comprising scaling a scalable font to render the scalable text content.

75. The mobile device of claim 51, wherein the original format of the Web page defines a height and width for the Web page, and wherein execution of the instructions performs further operations comprising:

determining an applicable scale factor to display at least one of the width and height of the Web page substantially across a display area of the touch-sensitive display; and

employing the scale factor to render the display area.

76. The mobile device of claim 51, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

77. The mobile device of claim 51, wherein a portion of the HTML-based Web content comprises XML-based content.

78. The mobile device of claim 51, wherein a portion of the HTML-based Web content comprises cascaded style sheet data.

79. A mobile device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network via which Web content may be accessed;

touch-sensitive display means, to facilitate user input and display rendered content;

programmed circuit means; and

storage means, in which a plurality of instructions are stored,

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84. The mobile device of claim 79, wherein the display of the Web page is re-rendered substantially in real-time to effect zooming operations.

85. The mobile device of claim 79, wherein execution of the instructions performs further operations comprising enabling a user to pan a display of the Web content in response to a corresponding user input made via the touch-sensitive display.

86. The mobile device of claim 85, wherein execution of the instructions performs further operations comprising enabling the display of the Web content to be panned substantially in real-time.

87. The mobile device of claim 79, wherein the Web content includes at least one image, and wherein execution of the instructions performs further operations comprising enabling a user to view an image at a higher resolution than a current resolution by tapping on the image via the touch-sensitive display, wherein in response thereto, the display is re-rendered such that the image is displayed substantially across at least one of a width and height of a display area of the touch-sensitive display.

88. The mobile device of claim 79, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions performs further operations comprising:

building a display list via use of the scalable content and rendering the display list on a virtual display in the dynamic memory; and

scaling the display list to re-render the display of the Web page.

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ABSTRACT OF THE DISCLOSURE

Mobile devices enabled to support resolution-independent scalable display of Internet (Web) content to allow Web pages to be scaled (zoomed) and panned for better viewing on smaller screen sizes. The mobile devices employ software-based processing of original Web content, including HTML-based content, XML, cascade style sheets, etc. to generate scalable content. The scalable content and/or data derived therefrom are then employed to enable the Web content to be rapidly rendered, zoomed, and panned. Display lists may also be employed to provide further enhancements in rendering speed.

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on a high-resolution display, they occupy only a portion of the display, making portions of the pages, especially those portions containing small text, difficult to read. By enabling users to selectively magnify the entire page, these design flaws are easily overcome. Alternatively, the client may be a small device, such as a hand held computer or a cell phone, which has a smaller display resolution than common Web pages are designed for. As explained below, through use of the invention's scalable vector representation and client-side processing, users are enabled to view the entire content of billions of existing Web pages using hand-held devices in a simple and reasonable way.

Please replace paragraph [0093] with the following amended paragraph:

[0093] Next, in a block 166, the vectors and boundary boxes are processed based on the scale and offset, and a bounding box defining the limits of the display content is determined. The results of this step are shown in FIGURE 4F, while FIGURE 4G shows specific details ~~one~~ on how the vectors and bounding boxes corresponding to image objects 250B and ~~250B~~ 252B (now 250B' and 252B', respectively) are processed. Logically, there are generally two ways to scale and offset the rendered content. In one embodiment, vectors and bounding boxes are mapped to a virtual display area in memory that has much greater resolution (*e.g.*, 100,000x100,000 pixels) than any real display, and a virtual display limit bounding box is scaled and moved around over the virtual display area. Accordingly, during subsequent processing described below, objects falling within the display bounding box are rendered by reducing the scaling of those objects in the virtual display to how the objects will appear on the client device display relative to the virtual display bounding box. In the alternate, a fixed reference frame corresponding to the display resolution of the client device screen is maintained, wherein all vectors and bounding boxes are scaled and offset relative to the fixed reference frame. Each scheme has its advantages and disadvantages. One advantage of the second method is that the

As defined by SearchSMB.com Definitions[1]

real time

DEFINITION- Also see real-time clock and real-time operating system.

Real time is a level of computer responsiveness that a user senses as sufficiently immediate or that enables the computer to keep up with some external process (for example, to present visualizations of the weather as it constantly changes). *Real-time* is an adjective pertaining to computers or processes that operate in real time. Real time describes a human rather than a machine sense of time.

In the days when mainframe batch computers were predominant, an expression for a mainframe that interacted immediately with users working from connected terminals was *online in real time*.

The inclusion of "substantially' in the use of a "substantially in real-time" context (as recited in the claims prior to the instant amendments) was to differentiate the claim from meaning it occurs instantaneously, which would be an erroneous interpretation under the proper use context. Rather, the operation is performed in a non-disrupted manner, as experienced by the user. For the purpose of a defined time period, "in real time" as used herein means the operation is performed in a few seconds or less.

New Claims 89-96

New claims 89-96 have been added herein. Support for disclosure of the subject matter of the new claims is provided at least as follows. In addition, there may be further support elsewhere in the specification and drawings.

With respect to new claims 89 and 96, the use of a rendering engine for determining page layout information is generally discussed in paragraphs [0076] - [0082] with reference to the flowchart of FIG. 5.

With respect to new claim 90, the disclosure of the use of mathematical transformations to effect scaling and offset of scalable content is generally discussed in paragraphs [0092] - [0097] with reference to the flowchart of FIG. 6 and the XY page

[1] http://searchsmb.techtarget.com/sDefinition/0,,sid44_gci214344,00.html

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layout examples of FIGS. 4A-4G. More particularly, disclosure to support the use of transformation equations,

$X' = X * SF + \Delta X;$

$Y' = Y * SF + \Delta Y;$

is provided in paragraphs [0094] and [0095] and illustrated in FIG. 4G.

With respect to new claim 91, disclosure supporting use of the transformation equations of claim 90 to facilitate scaling and offset operations by mapping points on a page layout in a virtual coordinate system to a device coordinate system is discussed in paragraphs [0092] - [0097] with reference to the flowchart of FIG. 6 and the XY page layout examples of FIGS. 4A-4G. For example, in one embodiment the page layout information including object datums (i.e., XY points) determined by the operations in the flowchart of FIG.5 (and as illustrated in the XY page layout example of FIGs. 4A-D) are mapped as vectors to a virtual display area. The virtual display area comprises a virtual (XY) coordinate system that is resolution independent, and the datum points are mapped to the virtual coordinate system as point vectors (i.e., from XY pixel locations in the original page layout (as interpreted by the rendering engine) to XY coordinate points in the virtual coordinate system). The transformation equations, $X' = X * SF + \Delta X$ and $Y' = Y * SF + \Delta Y$ are then employed to mathematically transform (i.e., map) XY points (i.e., point vectors) from the virtual coordinate system to a device (X'Y') coordinate system corresponding to the pixel resolution of the device's display.

With respect to new claims 92-94, subject matter for each claim is generally discussed in paragraphs [0092] - [0097] with reference to the flowchart of FIG. 6 and the XY page layout examples of FIGS. 4A-4G.

With respect to new claim 95, the use of cascading style sheets (CSS) for defining object page layout and attribute information in Web pages (and processing the same to determine object page layout and attribute information) is generally discussed with reference to the flowcharts of FIGs. 2A-2C and in paragraph [0056].

DETAILED ACTION

In response to Amendments/Remarks filed 04/21/2010 and telephone interviewed on 06/02/2010, the examiner's amendment was authorized by attorney of record Allan Burnett, Attorney for Applicants. The current patent application originally filed 04/21/2007.

It is noted the current application is a continuation of 09/878,097 now is US Patent 7,210,099 filed 06/08/2001 issued 04/24/2007, which is a continuation in part of ***09/828,511***, which Claims Priority from Provisional Application 60/211,019 filed ***06/12/2000***, which claims Priority from Provisional Application 60/217,345 filed 07/11/2000.

- Claims 1-13, 15-16, 19-22, 24-37, 39-40, 43-63, and 65-96 are pending.
- ***Claims 1, 27, 51, 79 and 90 are currently amended***.
- Claims 14, 17, 18, 23, 38, 41, 42 and 64 were previously cancelled.
- Claims 1-13, 15-16, 19-22, 24-37, 39-40, 43-63, 65-89 and 91-96 were Previously Presented and/or Original.
- Claims 1; 27; 51 and 79 are independent claim.

In addition, it is noted the Obviousness-Type Double Patent to claims 1-88, and the 112 rejections to claims 1; 11; 13; 15-16; 25; 27; 29; 35; 37; 39; 40; 49; 56; 61; 63; 65; 66; 75; 84; 86 and 87, set forth in the previous office action dated 04/01/2010 is hereby withdrawn, in light of Terminal Disclaimer filed 04/21/2010 and Approved 05/01/2010 and further view of the amendment filed 04/21/2010 (@ Pages 3-26).

Also, the Examiner acknowledges apllicant's amendments to the specification filed 04/21/2010 (see the Amendments to the Specification paper filed 04/21/2010 @ page 2).

Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

EXAMINER'S AMENDMENT

The application has been amended as follows:

In the Claims:

- Please replace the claims with the following claim set:

1. (***Currently Amended***) A mobile device, comprising:

a processor,

a wireless communications device operatively coupled to the processor, to facilitate communication with a network via which Web content may be accessed;

a touch-sensitive display;

a memory, operatively coupled to the processor; and

storage means, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile phone to perform operations including,

enabling a user to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and ~~attributes~~ design of content on the Web page;

retrieving HTML-based Web content associated with the Web page;

translating the HTML-based Web content to produce scalable vector-based page layout information;

employing the scalable vector-based page layout information and/or data derived therefrom to,

render a view of at least a portion of the Web page on the touch-sensitive display using a first scale factor; and

re-render the Web page in response to associated user inputs to enable a user to iteratively zoom in and out ~~a display~~ views of the Web page on the display while preserving the original page layout, functionality, and design of the content on the Web page defined by the HTML-based Web content,

wherein preservation of the functionality defined by the HTML-based content includes preservation of hyperlink functionality.

2. (Original) The mobile device of claim 1, wherein the device comprises a mobile phone.

3. (Previously Presented) The mobile device of claim 1, wherein the device comprises one of a hand-held device or a palm-held device.

4. (Original) The mobile device of claim 1, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input made via the touch-sensitive display.

storage means, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile phone to perform operations including,

rendering a browser interface via which a user is enabled to request ~~to~~ access to a Web page having an original format comprising HTML-based content defining an original page layout, functionality, and ~~attributes~~ design of content on the Web page;

retrieving ~~Web~~ HTML-based content associated with the Web page;

translating at least a portion of the ~~Web~~ HTML-based content from its original format to produce translated content ~~into~~ including scalable vector-based content that supports a scalable resolution-independent ~~display~~ representation of the HTML-based content that ~~retains~~ preserves an original page layout, functionality and design of the at least a portion of the HTML-based content when scaled and rendered; and

employing the scalable vector-based content to render a view of at least a portion of the Web page on the display using a first scale factor,

wherein preservation of the functionality defined by the HTML-based content includes preservation of hyperlink functionality.

28. (Original) The mobile phone of claim 27, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input made via the touch-sensitive display.

29. (Previously Presented) The mobile phone of claim 28, wherein the display of the Web page is re-rendered in real-time to effect zooming operations.

determining an applicable scale factor to fit the width of the Web page across a display area of the touch-sensitive display; and

employing the scale factor that is determined as the first scale factor.

50. (Original) The mobile phone of claim 27, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

51. (***Currently Amended***)A mobile device, comprising:

a processor,

wireless communications means, to facilitate wireless communication with a network via which Web content may be accessed;

a touch-sensitive display;

flash memory, operatively coupled to the processor, in which a plurality of instructions are stored that when executed by the processor enable the mobile device to perform operations including,

rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page;

retrieving and processing the HTML-based Web content to produce scalable content; and

employing the scalable content and/or data derived therefrom to,

render a view of the Web page on the touch-sensitive display; and

re-render the Web page in response to associated user inputs to enable the user to iteratively zoom in and out ~~a display~~ views of the Web page while preserving an original page layout, functionality, and design

defined by the HTML-based Web content as interpreted by a rendering engine,

wherein preservation of the functionality defined by the HTML-based Web content includes preservation of hyperlink functionality.

52. (Original) The mobile device of claim 51, wherein the device comprises a mobile phone.

53. (Original) The mobile device of claim 51, wherein the device comprises one of a Personal Digital Assistant (PDA) or pocket PC.

54. (Original) The mobile device of claim 51, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-selectable portion of a display of the Web page in response to a user interface input made via the touch-sensitive display.

55. (Original) The mobile device of claim 54, wherein the user interface input enables the user to define a window of a current view of the Web page on which to zoom in on.

56. (Previously Presented) The mobile device of claim 51, wherein the display of the Web page is re-rendered in real-time to effect zooming operations.

57. (Original) The mobile device of claim 51, wherein the Web page includes at least one hyperlink, and wherein execution of the instructions performs further operations comprising:

enabling the user to select the hyperlink via the touch-sensitive display; and, in response thereto,

wherein, upon execution of the instructions by at least one of the processing means and programmed circuit means, the mobile device is enabled to perform operations, including,

rendering a browser interface via which a user is enabled to request ~~to~~ access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page;

retrieving and processing the HTML-based Web content to produce scalable content; and

employing the scalable content and/or data derived therefrom to,

render a view of the Web page on the touch-sensitive display; and

re-render the Web page in response to associated user inputs made via the touch-sensitive display means to enable the user to iteratively zoom in and out ~~a display~~ views of the Web page while preserving an original page layout, functionality, and design defined by the HTML-based Web content as interpreted by a rendering engine,

wherein preservation of the functionality defined by the HTML-based Web content includes preservation of hyperlink functionality.

.

80. (Original) The mobile device of claim 79, wherein the processing means includes a general-purpose processor.

81. (Original) The mobile device of claim 79, wherein at least a portion of the programmed circuit means is embodied as a special-purpose processor.

82. (Original) The mobile device of claim 79, wherein execution of the instructions performs further operations comprising enabling the user to zoom in on a user-

processing the HTML-based Web content with a rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine;

employing the page layout information to generate the scalable vector-based page layout information.

Information Disclosure Statement

The signed and dated copies of applicant's IDS, which were filed on 04/21/2010, is attached to this Office Action.

Allowable Subject Matter

Claims 1-13, 15-16, 19-22, 24-37, 39-40, 43-63, and 65-96 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Under the broadest reasonable interpretation of the claimed limitation consistence with the Applicant's Specification, the claimed invention advantageously provides a method and device for creating resolution-independent vector display of Intemet content to allow it to be scaled (zoomed) larger and smaller for better viewing or to fit any resolution or screen size, which are designed for a client device (e.g., desktop computers, a "small-screen" device, such as a cell phone, mobile device and/or a PDA).

In particular, the claimed invention takes HTML-based Web content in its original page layout of the web page and *translates* the HTML-based Web content into "scalable

content" that supports a scalable, resolution-independent representation of the HTML-based Web content that for enabling Web pages in their ***original HTML-based content form to be accessed via mobile devices***, viewed at various zoom levels by zooming in and out views of the Web pages and interacted with via the mobile devices in a manner the ***preserves the original page layout, functionality*** (including preservation of hyperlink functionality), ***and design*** of the Web page content (as defined by its HTML-based content) (See also the currently amended independent claims 1, 27, 51 and 79 as recited above.)

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc A. Tran whose telephone number is 571-272-8664. The examiner can normally be reached on Mon through Fri 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on (571)272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Applicants do not believe the added script has any adverse affect to the rendering of the pages. Rather, the script appears to be for the purpose of resolving URLs referenced within the HTML page definition.

In addition to the screenshot documents identified in the Information Disclosure Statement form PTO/SB/08a, there are some additional screenshots documents that are not being submitted as IDS references (since they are not purported to qualify as prior art references under *Epstein*), but are being submitted for more complete observation of the *Opera 3.60* behavior. It is noted that all of the screenshots captured in the documents listed in the IDS were captured using a machine running the Windows 2000 Professional operating system. Applicants note that there was no observed behavior difference of any significance when rendering pages with *Opera 3.60* under Windows 98 and Windows 2000 Professional, as evidenced by the screenshot documents submitted herewith but not listed in on IDS form PTO/SB/08a. It is noted that Windows 2000 was not available at the time of *Opera 3.60's* release date (it became available in early 2000).

Test Environments

As discussed above, *Opera 3.60* was tested on computers running Microsoft Windows 98, Windows 2000 Professional, and Windows XP operating systems. However, only screenshots from computers running Windows 98 and Windows 2000 Professional are submitted herewith.

In general, the purpose of the screenshots is to demonstrate the behavior of the self-described (by *Opera 3.60* documentation) "page zooming" feature. The page zooming feature is (presumably) designed to enable users to view Web pages at different zoom levels; however, the performance of this feature was rather unpredictable and inconsistent, as evidence by the attached screenshots.

allegedly these Microsoft Windows operating systems are backwards compatible, meaning an application that would run on Windows 98 should run in a similar manner on Windows 2000.

As discussed above, the overall behavior of the "page zooming" feature was inconsistent and somewhat unpredictable. More specific details of the results of various example Web pages are contained in the auxiliary screenshot documents submitted herewith; however, the screenshot documents listed in the IDS are submitted without comment[1].

Of the auxiliary screenshot documents, the most demonstrable one includes screenshots illustrating the comparison between the www.arbidol.org original home page and its modified version. At 100% (that is, the rendering engine's interpretation of the Web page's content, layout, and attributes as defined by the page's HTML-based content), the original and modified versions of the page render substantially identically (at the browser window size used in for the comparison test). However, while page zooming of the original page functions fairly well (that is, it substantially preserves the page layout and attributes at most zoom levels), the page layout and attributes of the modified page are clearly not preserved at many zoom levels. This demonstrates that the rendered versions of the pages at zoom levels other than 100% are not based on the rendering engine's interpretation of the page layout and design at 100% - that is the interpretation of the page designer's intent of what the page is designed to render like. Thus, Opera 3.60 does not generate scalable content and/or scalable vector-based page layout information in accordance with the pending claims of the present application.

[1] There is textual information provided with these documents identifying various test parameters.

Attorney Docket No. 005207.P001XC3 *Patent*

Certificate of Electronic Filing

I hereby certify that this correspondence is being Electronically Filed via EFS on September 9, 2010
Date of Electronic Filing
R. Alan Burnett
Name of Person Filing Correspondence
/S/ R. Alan Burnett — September 9, 2010
Signature — Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Rohrabaugh et al.	Examiner: Tran, Quoc A.
Serial No. 11/738,486	Art Unit: 2176
Filed: April 21, 2007	
For: SCALABLE DISPLAY OF INTERNET CONTENT ON MOBILE DEVICES	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Sir:

In response to the Notice of Allowance and Examiner's statement of reasons of allowance mailed on June 9, 2010, it is respectfully requested that the following comments be entered in the record of the above-referenced patent application.

COMMENTS

In the section entitled "Allowable Subject Matter" on page 28 of the Notice of Allowability, the Examiner states (emphasis in original),

> The following is a statement of reasons for indication of allowable subject matter: Under the broadest reasonable interpretation of the claimed limitation consistent with the Applicant's Specification, the claimed invention advantageously provides a method and device for creating resolution-independent vector display of Internet content to allow it to be scaled (zoomed) larger and smaller for better viewing or to fit any resolution or screen size, which are designed for a client device (e.g., desktop computers, a "small-screen" device, such as a cell phone, mobile device and/or a PDA).
>
> In particular, the claimed invention takes HTML-based Web content page layout of the web page and *translates* the HTML-based Web content into "scalable content" that supports a scalable, resolution-independent representation of the HTML-based Web content that for enabling Web pages in the ***original HTML-based content form to be accessed via mobile devices***, viewed at various zoom levels by zooming in and out views of the Web pages and interacted with via the mobile devices in a manner the ***preserves the original page layout, functionality*** (including preservation of hyperlink functionality), ***and design*** of the Web page content (as defined by its HTML-based content) (See also the currently amended independent claims 1, 27, 51, and 79 as recited above.)

The Examiner's statements of reasons for allowance are hereby acknowledged by Applicant. Applicant agrees that the claimed subject matter is patentable; however, the Examiner's reasons for allowance should not be attributed to Applicant as an indication of the basis for Applicant's belief that the claims are patentable.

Patentability of each claim is defined by the elements of that claim

It is well-established that the scope of a claim is defined by the claim elements in that particular claim, and the patentability of each claim is considered individually. Accordingly, elements that are not recited in a given claim are not to be read into the claim when interpreting its claim scope. Rather, the scope of each claim is to be

interpreted based on its plain meaning[1] in view of the written description of the application. In particular, MPEP 2111.01 Plain Meaning [*R-5*] states, in part,

II. IT IS IMPROPER TO IMPORT CLAIM LIMITATIONS FROM THE SPECIFICATION

"Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004). See also *Liebel-Flarsheim Co. v. Medrad Inc.*, 358 F.3d 898, 906, 69 USPQ2d 1801, 1807 (Fed. Cir. 2004)(discussing recent cases wherein the court expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment);< *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) ("Interpretation of descriptive statements in a patent's written description is a difficult task, as an inherent tension exists as to whether a statement is a clear lexicographic definition or a description of a preferred embodiment. The problem is to interpret claims 'in view of the specification' without unnecessarily importing limitations from the specification into the claims."); *Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371, 65 USPQ2d 1865, 1869-70 (Fed. Cir. 2003) (Although the specification discussed only a single embodiment, the court held that it was improper to read a specific order of steps into method claims where, as a matter of logic or grammar, the language of the method claims did not impose a specific order on the performance of the method steps, and the specification did not directly or implicitly require a particular order).

The applicant respectfully asserts the basis for allowance for each claim in the present application is based on the elements recited in that claim alone and is not based on any elements or subject matter that is not recited in the claim. For example, independent claim 27 recites, in part (emphasis added),

> ...
>
> retrieving HTML-based content associated with the Web page;
>
> translating at least a portion of the HTML-based content from its original format to produce *translated content including scalable vector-based content that supports a* ***scalable resolution-independent representation of the HTML-***

[1] Plain meaning is to be employed unless that plain meaning is inconsistent with the use of the terminology in the specification, noting that an inventor can be his own lexicographer. See MPEP 2111.01 and MPEP 2173.05(a)

based content *that preserves an original page layout, functionality and design of the at least a portion of the HTML-based content when scaled and rendered*; and

...

It is respectfully noted that the element pertaining to "support[ing] a ***scalable resolution-independent representation of the HTML-based content*** that preserves *an original page layout, functionality and design of the at least a portion of the HTML-based content when scaled and rendered"* is only present in independent claim 27 (and by way of dependency in claims 28-37, 38-40, 43-50 and 96, each of which is directly or indirectly dependent on claim 27), and is not present in any of the other allowed claims. Accordingly, since this or a similar element related to the terminology "scalable resolution-independent representation of the HTML-based content" is not recited in any of the other allowed claims, this element or such a similar element shall not be read into the scope of any claims other than 27-37, 38-40, 43-50, and 96.

As a second example, some of the claims recite the term "vector-based" as applied to a corresponding element (e.g., "vector-based" page layout information in claim 1), while other claims recite elements that are "scalable." Accordingly, if the recited claim language includes the term "scalable" without including the term "vector-based," then the scope of the claim does not require the corresponding element to be vector-based, although it doesn't preclude such elements from being vector based. For example, independent claim 51 recites, in part,

...

rendering a browser interface via which a user is enabled to request access to a Web page comprising HTML-based Web content defining an original page layout, functionality, and design of content on the Web page;

retrieving and processing the HTML-based Web content to produce ***scalable content***; and

employing the ***scalable content*** and/or data derived therefrom to, ...

while dependent claim 58 recites,

The mobile device of claim 51, wherein at least a portion of the ***scalable content comprises scalable vector-based content***.

Similarly, independent claim 79 recites the same language (with respect to "scalable content") as claim 51 presented above . Although there is no corresponding dependent claim (based on claim 79) that is analogous to claim 58, it will be understood that all or a portion of the scalable content referred to in claim 79 *may* comprise scalable vector-based content; however, this recited terminology does not require any of the scalable content to comprise vector-based content.

The applicant acknowledges that a portion of paragraph [0031] of the specification states, "Apparatus and methods are described for creating resolution independent vector display of Internet content to allow it to be scaled (zoomed) larger and smaller for better viewing or to fit any resolution or screen size." Applicant notes that the terminology "resolution independent vector" corresponds to an aspect of one or more particular embodiments disclosed in the application, and as is made clear above, "a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." At the same time and as discussed above, there are claims among the allowed claims that include language relating to the terminology "resolution independent" and "vector," and the scope of the related elements in these specific claims is to be interpreted in accordingly.

Applicant additionally notes that while the word "display" follows the word "vector" in the foregoing text (*i.e.*, "resolution independent ***vector display***"), the display referred to therein is not a physical "vector display," which was a type of display that existed several decades or more ago (*e.g.*, CRT oscilloscope displays, radar displays), but rather in at least one embodiment resolution independent vectors are employed, in part, to lay out display content in connection with generating scaled views of web content used in connection with generating a display of web page content at different zoom

levels that is displayed on a device's screen (also referred to in the present application as a display or display screen).

Preservation of Original Page Layout, Functionality and Design

New claim language has been added by way of an Examiner's amendment (per agreement with the Applicant), and includes the language "preserving the original page layout, functionality, and design" of the HTML-based Web content. To more fully understand the scope of this language, a discussion of operations pertaining to an exemplary use case of a mobile device enabled by the presented application is now presented. A similar discussion was first presented in the December 9, 2007 response of Application Serial No. 11/045,757, which is a divisional of the parent (Application Serial No. 09/878,097) of the present application; for clarity, much of this description is repeated below, while some details are omitted for brevity. The operations are discussed in the context of the following FIG. 1.

The schematic drawing shows an exemplary infrastructure comprising well-known components for facilitating access to and delivery of Web pages. Web page content (*i.e.,* Web content) is served by servers that are accessed via the Internet, also commonly referred to as the World Wide Web (WWW). Accordingly, these servers are typically referred to as "Web" servers. More accurately, they are HTTP (Hypertext Transport Protocol) servers, as they serve content of various types using the HTTP protocol. FIG. 1 shows a pair of exemplary Web servers, including a New York Times (NYT) Web server and an Advertisement (ADV) Web server. It will be appreciated that literally millions of similar Web servers are connected to the Internet across the world, thus forming the World Wide Web.

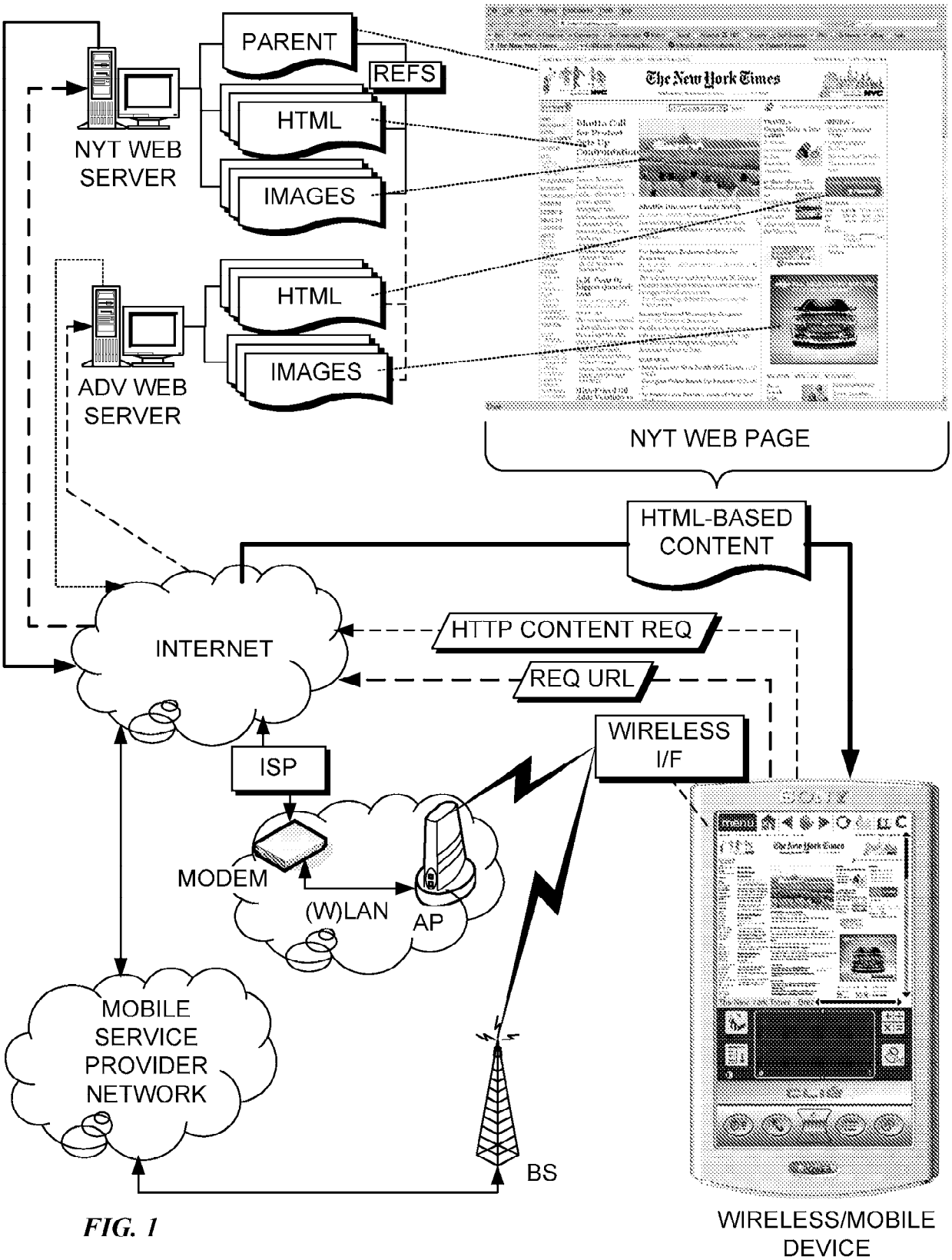
PARENT
REFS
HTML
IMAGES
NYT WEB SERVER
HTML
IMAGES
ADV WEB SERVER
The New York Times
NYT WEB PAGE
HTML-BASED CONTENT
INTERNET
HTTP CONTENT REQ
REQ URL
WIRELESS I/F
ISP
MODEM
(W)LAN
AP
MOBILE SERVICE PROVIDER NETWORK
BS
WIRELESS/MOBILE DEVICE

FIG. 1

To access WWW web servers, users use client devices that are communicatively coupled to the Internet through applicable network infrastructure. In the desktop environment, desktop clients, such as personal computers and workstations, are typically coupled to a Local Area Network (LAN) via an Ethernet link to a LAN host device. (It is noted that some desktop clients may wirelessly connect to a Wireless LAN (WLAN), in a manner similar to that discussed below for wireless clients.) The LAN, in turn is usually connected to the Internet via network infrastructure provided by an Internet Service Provider (ISP). Connection between the LAN and the ISP is typically provided by some type of Modem (*e.g.,* Cable or xDSL Modem) or dedicated hardware (for larger customers, such as businesses). (It is also noted that many individual users still connect to their ISP through a telephone modem.)

Wireless and mobile devices, including those devices covered by the claims herein, typically connect to the Internet in one of the manners illustrated in FIG. 1, or otherwise described in the December 9, 2007 response for Application Serial No. 11/045,757. (Further details are omitted here for brevity.) By way of example but not limitation, wireless access to the Internet may typically be provided via a mobile service provider, or via other types of wireless connections, such as via a WiFi or WIMAX connection, for example.

Now that the infrastructure of FIG. 1 has been described, we proceed with discussion of retrieving and processing the Web page content such that the Web page can be accessed via a wireless/mobile device. In the illustrated example, the process is initiated by a user desiring to access the New York Times (*i.e.,* and electronic version of the New York Times published to the Internet on a given day). This is facilitated by a browser in accordance with teaching of the present application running on the wireless/mobile device. The New York Times may be accessed via the Internet by downloading corresponding Web pages from the NYT Web server. More specifically,

the New York Times home page may be accessed by entering the URL (Universal Resource Locator) www.nytimes.com via the browser's user interface.

As discussed above and in further detail in the present specification, Web pages comprise HTML-based content which may be stored in one or more documents commonly referred to as HTML documents. In addition, Web pages may include dynamically-generated content. Each Web page has a corresponding main or "parent" HMTL document that includes HTML code defining the Web page content layout, at least at some level. The parent HTML document may reference other HTML documents, as well as other content (such as image content) that further define the layout of content contained in the referenced documents. This may proceed in a hierarchical or nested fashion.

To access the Web page, the browser initiates an HTTP connection with the Web server hosting the Web page, and begins downloading the parent HTML document. Depending on how the Web server and/or Web page is configured, additional content (*i.e.,* beyond that included in the parent HTML document) referenced by the parent HTML document, may be retrieved by the Web page host server and then downloaded to the requesting client device, or a portion of this content may be downloaded by the client device via a separate connection. Generally, content that is hosted by a Web server or Web site is assembled by the Web server and downloaded to the client device. On the other hand, externally-referenced content (that is, content that is not stored on the Web server or Web site), is often left to the client device (*i.e.,* the browser) to retrieve.

An example New York Times home page (dated November 7, 2007, 2:22PM ET), as rendered by the Mozilla Firefox browser running on a desktop or laptop computer, is shown at the upper right-hand portion of FIG. 1. The same Web page is shown rendered on a Sony Clié using a SoftView™ browser at the lower right-hand portion of

FIG. 1.[2] Notably, the same HTML-based content defining the page layout, functionality, and design of the Web page content is downloaded by each of the Mozilla Firefox and SoftView™ implementation. Moreover, the same HTML-based content would be retrieved by other desktop browsers, such as Microsoft Internet Explorer, Apple Safari, and Opera browsers, to render the New York Times home page.

As discussed above, the Parent HTML document typically includes HTML code to define the overall layout of the Web page and its content. For example, the HTML code will define whether the Web page includes frames, and, if so, where those frames are located on the rendered page. The Parent HTML document may also contain Cascaded Style Sheet (CSS) data defining various design aspects of the page, or contain one or more references to other documents containing such CSS data. Various content displayed on the Web page may be stored in the Parent HTML document and/or one or more other HTML documents referenced by the Parent HTML document. If the content is to be rendered in a frame referenced by the Parent HTML document but whose content is not defined within the Parent HTML document, the actual reference to the HTML document storing the content may be in the document defined by the frame reference. For example, for illustration purposes, the content in the column with the heading "U.S. Rejected Aid for Israeli Raid on Iranian Nuclear Site" is depicted to be stored in an HTML document that is hosted by the NYT Web server, but is separate from the Parent HTML document.

Likewise, image content may be stored separate from the Parent HTML document. This is typically done since images, which often contain a large amount of data due to the nature of image data, may require significant download time, especially

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[2] It is noted that the use of the Sony Clie and corresponding SoftView browser screenshots are for illustrative purposes to demonstrate how web page views on a mobile device in accordance with the claims herein might appear. The screenshots were produced using a SoftView proxy server and browser client running on a Palm OS Emulator 3.0a8S1.0, 2000-2001 using a Sony Clie PEG-700 Skin.

over a slow connection. By putting image content in (a) separate document(s), the basic page layout and text content can be rendered much faster. Typically, HTML code defining the page layout location of an image on the page may be used to place an image "placeholder" or other indicia on the screen prior to rendering of the image.

As discussed above, various portions of the Web page content may be stored on Web servers that are external to the Web page host server. This is often the case with advertisement content. Rather than have the advertisement content stored locally on each Web server, the advertiser will use an advertisement host site to store and serve the advertisement content. For example, in Fig. 1, image data for rendering the "DON'T MISS HISTORY IN THE MAKING" advertisement is depicted as being stored in an image document on the Advertisement Web server.

Under a typical conventional approach, externally referenced advertisement content is downloaded by the browser directly from the advertisement content host site, rather than from the Web page host site. The network location of the advertisement content host server is identified by parsing the retrieved HTML-based content, and an HTTP GET request is used to download the associated advertisement content from its host server.

Some Web pages may include "embedded" content hosted by an external site. Oftentimes, such embedded content may be dynamic in nature (that is, may change over time or differ depending on identification of the target user). Generally, embedded content may be retrieved by the browser from an external host site (*e.g.,* advertisement Web server depicted in Fig. 1), or such content may be first retrieved by the Web page host site and served to the browser.

It is common terminology to refer to a browser "retrieving" or "downloading" a Web page. For example, upon entry of a new URL in the browser Web address box of a desktop browser, the browser will download the Web page referenced by the URL. It is well understood that this doesn't imply that all of the content associated with the Web

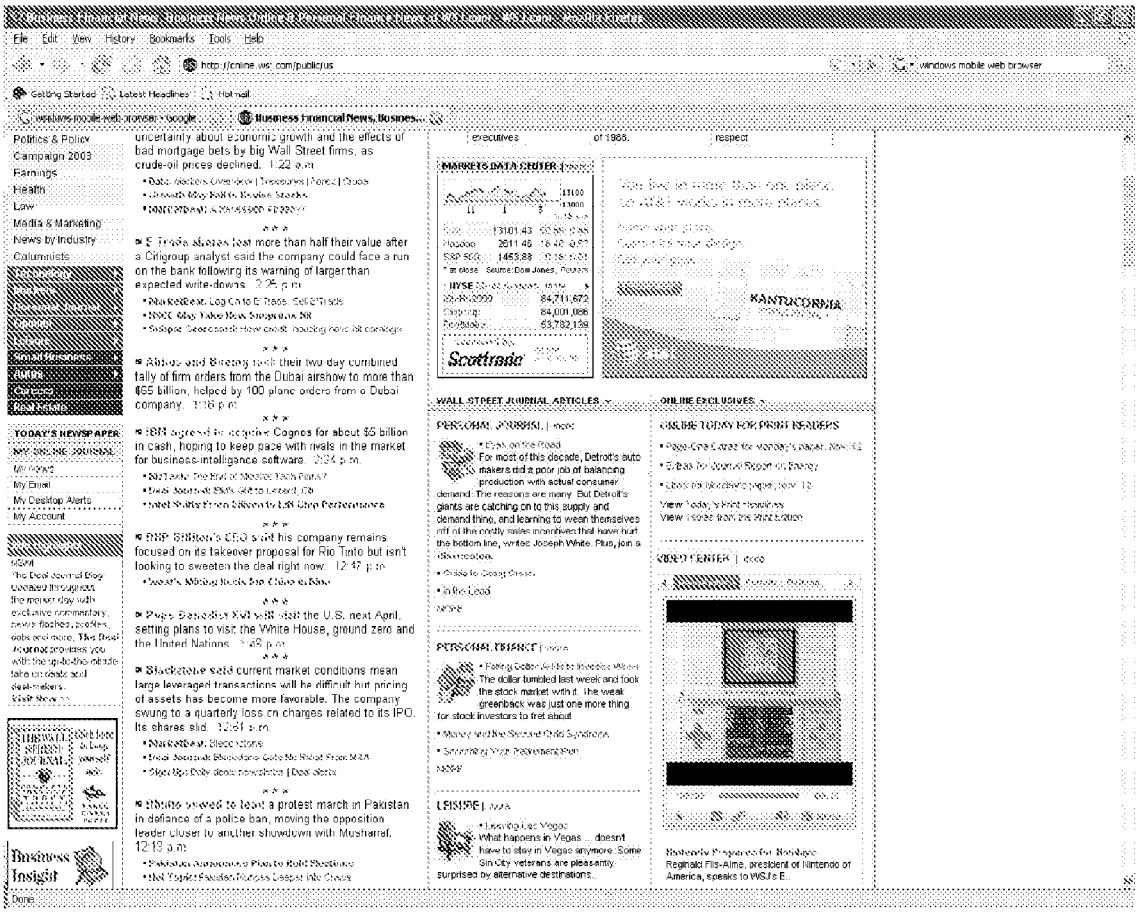
page must be retrieved or downloaded. Some of the content is typically used for search engine or other purposes, such as some Metatag header information, or is otherwise not used for rendering purposes. Other Metatag information may be employed for rendering purposes, such as defining browser compatibility information. In other cases, content may be referenced that is not supported by the requesting browser. For example, "Flash" content typically requires a Flash plug-in viewer (or built-in Flash support provided by some browsers); if the plug-in viewer is not loaded by the browser (or such support isn't built in), the Flash content cannot be displayed. This is also true for TIFF images on the USPTO Web site. Unless an appropriate TIFF plug-in viewer is loaded, the TIFF images will not be displayed.

A similar situation exists with Active-X controls. In order to use the Active-X controls, the browser needs to provide support for Active-X controls. Since Active-X controls were developed by Microsoft, all recent versions of Microsoft Internet Explorer provide support for Active-X controls. Meanwhile, browsers from other vendors, such as Apple Safari, Mozilla Firefox, and Opera, do not support Active-X controls.

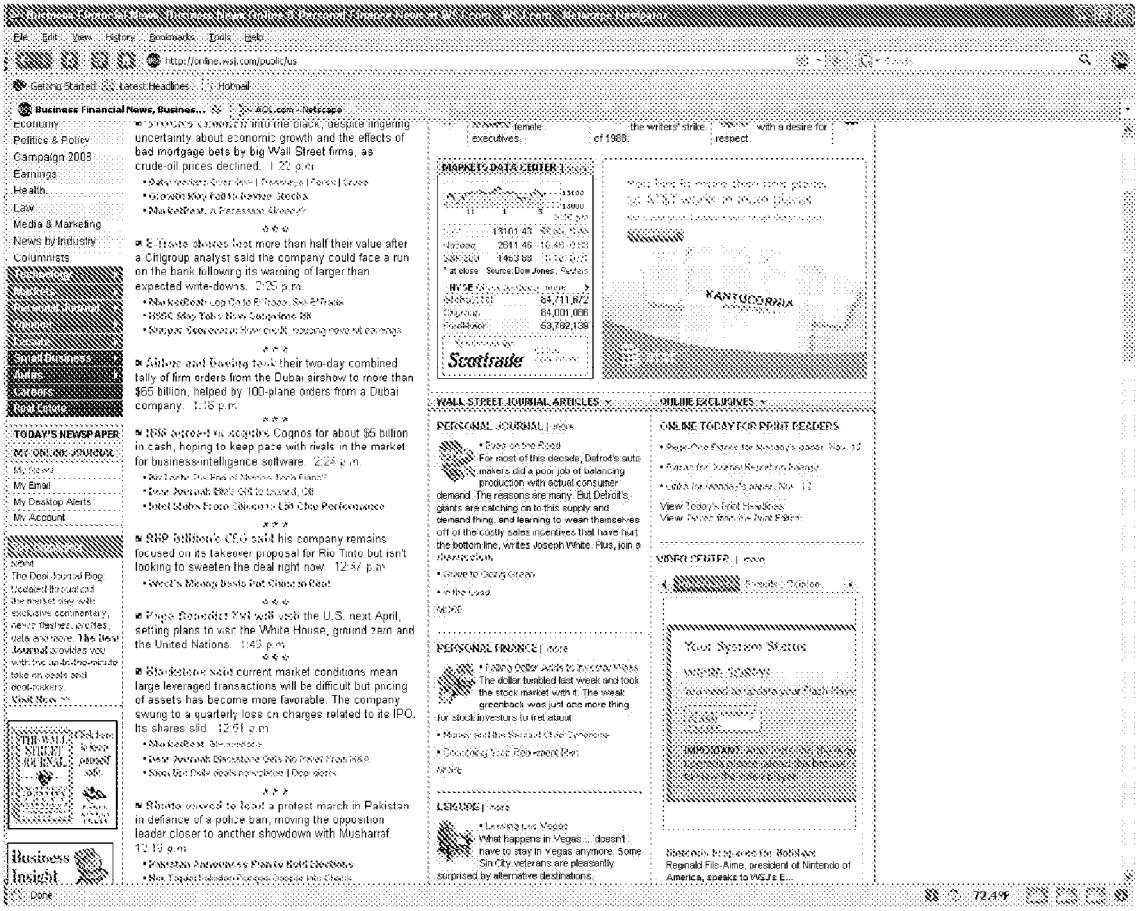
When a browser encounters content that is not supported "natively" by the browser, the browser will typically check to see if an appropriate plug-in is available. Depending on the browser and/or particular Web site, if an appropriate plug-in cannot be found, the browser or Web site may apprise the user of the situation and enable the user to download the plug-in. In other instances, the content is simply ignored. Thus, in some cases, the Web page may reference content that is never retrieved when the Web page is retrieved by the browser.

The three screen shots below respectively show the same Web page (WSJ.com home page) rendered on a Netscape Navigator 9 browser, a Mozilla Firefox 2.0 browser, and an Internet Explorer 7 (IE 7) browser. In this particular instance, certain features of the IE7 browser are disabled for security reasons. It is also missing some

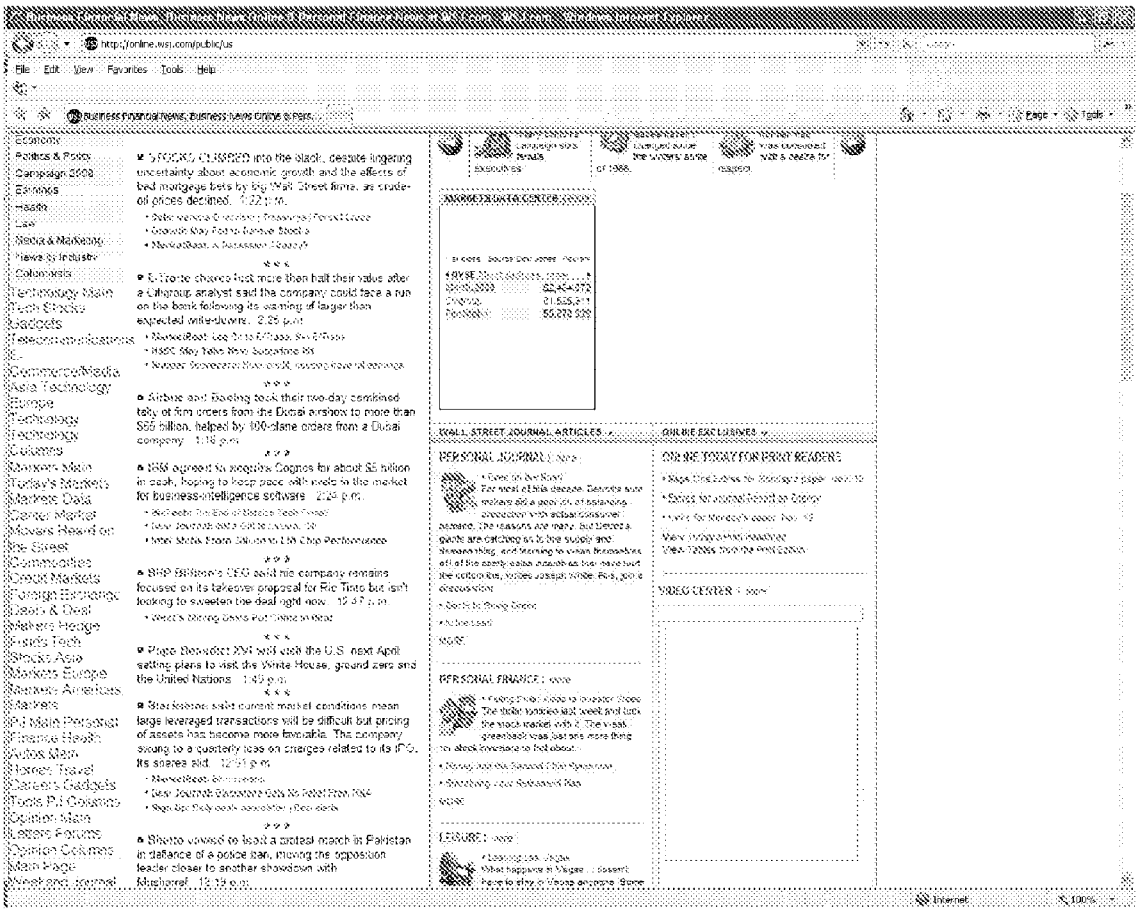
plug-ins. Each of these browsers is running on the Microsoft Windows XP operating system.



Mozilla Firefox 2.0 Browser



Netscape Navigator 9 Browser



Microsoft Internet Explorer 7 Browser

It will be observed that the Web page is rendered substantially the same by the Netscape Navigator 9 and FireFox 2 browsers, while portions of the Web page are rendered in a different manner by the IE 7 browser (notably the left-hand column). The similarity between Netscape and Firefox is expected since they both use the same Mozilla core rendering code, while IE 7 uses Microsoft's rendering code. It is further noted that some Web pages are coded to account for different browser features. For example, some Web pages will have provisions for Active-X controls for pages to be viewed by Internet Explorer browsers, while possibly including provisions for alternate mechanisms when using other browsers.

This example Wall Street Journal Web page includes various embedded ***non-HTML content*** requiring support of one or more plug-ins[3] or otherwise built in support for rendering ***non-HTML*** content of a particular content type. In particular, the VIDEO CENTER object in the lower right-hand corner requires an Adobe (formerly Macromedia[4]) Flash viewer for rendering Flash content, which uses vector and raster graphics, a native scripting language called ActionScript and bidirectional streaming of video and audio.[5]

It is noted that there is a message in the VIDEO CENTER box in the Web page rendered by the Netscape Navigator 9 browser indicating that the browser needs to update its Flash player. In the case of the Firefox 2 browser, either the appropriate Flash player was found or an appropriate level of support for Flash content is built into the browser. In this case, the Flash .SWF file including data to render a video image of a Nintendo DS console is retrieved from a corresponding host server and rendered by the browser (if it has built-in support) or Flash player, as applicable. In the case of the Netscape Navigator 9 browser, the appropriate Flash player plug-in is not available; accordingly, the video image of the Nintendo DS console is not retrieved.

In the case of the particular IE 7 browser configuration used to obtain the IE7 screen shot, the Flash player is either missing or blocked. As a result, the aforementioned VIDEO CENTER image is missing (just an empty box is rendered, as defined by corresponding HTML). Moreover, the IE 7 browser did not render a

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[3] As defined by Wikipedia, A **plugin** (**plug-in**, **addin**, **add-in**, **addon** or **add-on**) is a computer program that interacts with a host application (a web browser or an email client, for example) to provide a certain, usually very specific, function "on demand". Applications support plugins for many reasons. Some of the main reasons include: enabling third-party developers to create capabilities to extend an application, to support features yet unforeseen, reducing the size of an application, and separating source code from an application because of incompatible software licenses.

[4] Macromedia is now a division of Adobe Systems

[5] For more details on the Adobe Flash Player, see, *e.g.*, http://en.wikipedia.org/wiki/Adobe_Flash_Player

message indicating the Flash player needed to be upgraded. In addition, the source for the AT&T advertisement in the upper right-hand portion is blocked via a security setting, resulting in this portion of the page being rendered using the same background color as the frame it (would be) embedded in.

A point for discussing the foregoing is to make it clear that,

1. Even when rendering the same Web page source content (*i.e.*, the HTML code definition of the Web page), conventional Web browsers may not render the (full scale) Web page identically. Under aspects of embodiments of the invention the overall layout and appearance (design) of the Web page representations defined by the HTML code for the Web page (as interpreted by the rendering/layout engine) are preserved at various zoom levels and panned views. That is, the preservation is relative to how the page layout and design of the Web page content is interpreted by the rendering/layout engine employed for a particular implementation, and is not relative to how the Web page might appear on a particular desktop browser, although they might appear the same or substantially similar if using the same rendering/layout engine.
2. Plug-ins may be required to render ***non-HTML content*** that is embedded within some web pages or used in a separate window launched from a web page. Notably, the plug-in content is not a Web page, but rather a specific type of content requiring a corresponding plug-in application to render the content.

Preservation of Original Page Layout and Design

As discussed above, new claim language has been added by way of an Examiner's amendment, and includes the language "preserving the original page layout, functionality, and design" of the HTML-based Web content. With respect to preserving the original page layout, the page layout (to be preserved) is determined as interpreted

by rendering/layout engine components, rather than as a comparison to how the page might be rendered by a particular desktop browser. As described above and in other remarks, browsers often do not render Web pages derived from the same HTML-based definition identically. Accordingly, one of ordinary skill in the browser art would not expect Web pages rendered using an implementation in accordance with the teachings disclosed in the present application to render pages as *exact* scaled replicas of the same page rendered by a conventional desktop browser, such as Internet Explorer or Safari, for example. Due to rendering limitations such as fixed size fonts, renderings of the same page when viewed at different zoom levels may result in small variations, as opposed to an exact scaled version of the same content (*i.e.*, as if viewed by a magnifying glass). While conceivably an implementation might produce this exact (*i.e.*, perfect magnification) result, such results are not required by the scope of the terminology "preserving the original page layout ... of the content."

A similar context exists with respect to "preserving the [original page layout, functionality, and] design" of the content. Preserving the design of a Web page's HTML-based content corresponds to support for rendering of a Web page at different zoom levels and panned views in accordance with its design as defined by corresponding HTML-based content, which includes such things as type fonts, separator bars, tables, columns, *etc.* Again, the Web page's design is a matter of interpretation by the particular browser (typically via its rendering/layout engine), as, for example, the same content (as defined by its corresponding HTML definition) may be rendered using different colors by different browsers. Similarly, browsers may substitute fonts for original fonts (as defined by corresponding HTML code) that are not supported by the browser or operating system used by a given host device. With respect to the scope of the terminology "preserving the [overall layout, function and] design" of the content, this refers to preserving the design as interpreted by the rendering engine while at different zoom levels and panned views, as opposed to

rendering the content identically to how it is rendered by a particular desktop browser that may interpret the page design differently. As discussed above, some design aspects relating the Cascading Style Sheets may not be implemented or may be implemented incorrectly by some browsers and/or rendering/layout engines. The preservation of the design is relative to the interpretation of the design aspects of the Web page.

Examples of SoftView™ Browser Screen Shots

The following pages illustrate various screen shots of the aforementioned nytimes.com Web page as translated by the SoftView™ proxy server and rendered on a SoftView™ browser client running on a Sony Clie emulator[6]. Under the claims herein, operations performed by a proxy server in accordance with these examples would be performed by a mobile device via use of browser software in conjunction with an operating system and potentially other facilities on the mobile device, as would be understood by one skilled in the art. Figs. 2a-2d further include screen shots of the Web page as rendered on a Firefox 3.0.5 desktop browser for comparison purposes.

As can be readily observed, the SoftView™ implementation produces a Web page with substantially similar display content to that rendered by the Firefox browser. However, there are some differences, which are to be expected. For example, since the nytimes.com site uses rotating advertisements, different advertisements will appear at different times, depending on exactly when the screen shots are captured. In addition, since some types of content, such as flash content, were not supported by the SoftView™ implementation employed to take the screen shots, this content is not displayed on the rendered page. For example, the nytimes.com web page includes code referencing a flash-based video (*i.e.*, the Play Video content under the VIDEO

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[6] Palm OS Emulator 3.0a8S1.0, 2000-2001 using a Sony Clie PEG-700 Skin. The emulator was used for the purpose of creating the screen shots – similar page renderings are produced using an actual Sony Clie PDA.

header). The corresponding area is rendered blank, such as shown in SoftView™ browser screen shot of Fig. 2b. Also, portions of the page layout may be adjusted in position depending on whether the content is supported or was available or successfully retrieved. Adjustments of this type are typically defined by layout rules implemented by the rendering/layout engine. For example, in the SoftView™ implementation an advertisement occupying the position of the "DON"T MISS HISTORY IN THE MAKING" in the desktop browser screenshots was either unable to be retrieved (potentially due to a timeout error or some other undetermined reason) or was of an incompatible type (*e.g.*, a flash advertisement that was one of multiple rotating advertisements used for this area on the nytimes.com home page[7]), and thus content below the missing advertisement is shifted upward in accordance with interpretation of the page by the version of the Mozilla rendering engine employed by the SoftView™ proxy server.

As discussed above, different browsers may render the same HTML-based Web page content slightly differently. Also, since aspects of Web page design and implementation have become more standardized, new types of content and design elements have been added or are otherwise now supported by some rendering/layout engines, and more are likely to be added in the future. As a result, earlier browsers using rendering/layout engines that were developed prior to the definitions of the new types of content and/or design elements or otherwise did not include support for such content or design elements will not display the content or design element(s) or may attempt to display them in an erroneous manner. Typically, when a browser rendering engine encounters content or a CSS element it doesn't recognize, it simply ignores is. In other cases, the HTML-based content may include support for functionality that is applicable to a desktop environment, but not applicable to a mobile device. For

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[7] It has been observed that the nytimes.com home page uses both external img (image)-based advertisements and flash-based advertisement in this portion of the page.

example, there are several web sites that include mouse "hover-over" menus under which a menu will pop-up or otherwise appear when a user places a mouse or pointer cursor over a corresponding portion of the screen. Since there is no mouse or equivalent on a typically mobile device, the browser's rendering/layout engine may be configured to ignore support of such functionality.

The claim language "preservation of the original page layout, functionality and design" is to be considered in the context of the browser implementation itself. That is, the preservation is relative to the interpretation of the page by the browser implementation itself, as opposed to preservation of the original layout, functionality and design based on some rigid consideration of a "perfect" interpretation of the page. As discussed above, a perfect interpretation does not realistically exist, as the HTML and related design specifications are too imprecise to begin with, and due to legacy considerations may remain so in the future.

Returning to the screen shots, Figs. 2a-d represent comparisons between the nytimes.com home page using Firefox 3.0.5 and the SoftView™ proxy server – browser client implementation. It is noted that the SoftView™ implementation (employed for the screenshots herein) uses a version of the Mozilla rendering engine from approximately 2002. As a result, there may be certain types of page design aspects that are not included in the rendered page, since corresponding aspects of the Cascading Style Sheets (CSS) specifications were not supported by this earlier version of the Mozilla rendering engine.[8] These include support for rendering some of the thin light gray column separator elements, which are defined in the common layout CSS document for the nytimes.com Web site.

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[8] See http://en.wikipedia.org/wiki/Cascading_Style_Sheets for an excellent discussion of the Cascading Style Sheets, their history, and in particular the section concerning difficulty with adoption.


The New York Times
U.S. Rejected Aid for Israeli Raid on Iranian Nuclear Site
In Nashville, A Ballot to Go 'All English'
As Talks Falter, Israel Warns of More Extensive Attacks
A Public Servant's Private Affair is at Issue
A Grim War Full of Traps and Trickery
Detroit Goes for Electric Cars, but Will Drivers?
Obama Raises Estimate of Job Creation in Plan
G.O.P. Eyes Choice of Diverse Leadership
Chrysler and Russia Sign Deal Over Gas
DON'T MISS HISTORY IN THE MAKING.
Subscribe now to The New York Times and get 50% off
Click here.

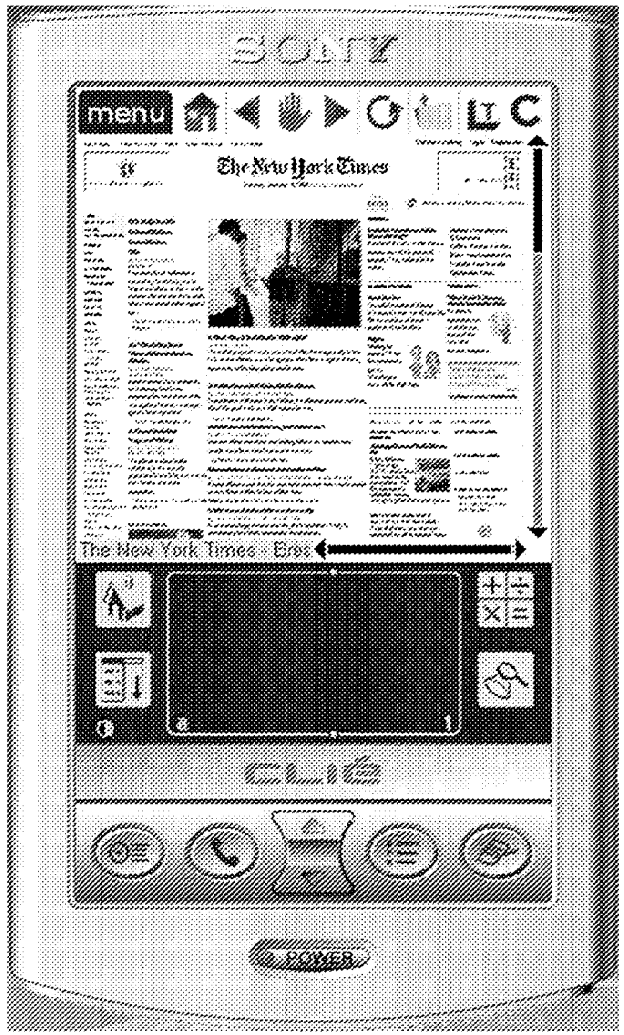

menu
The New York Times

Fig. 2a

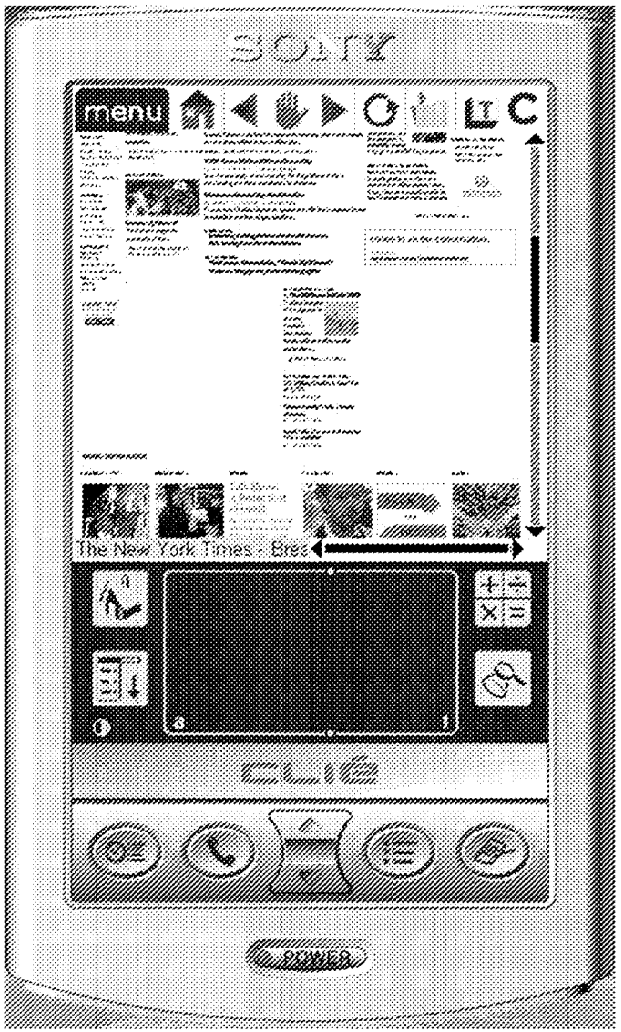


Fig. 2b


The New York Times
HEALTH
The 11 best foods you aren't eating
The Weekender
CLICK TO ORDER
health.nytimes.com
want to live longer, better?

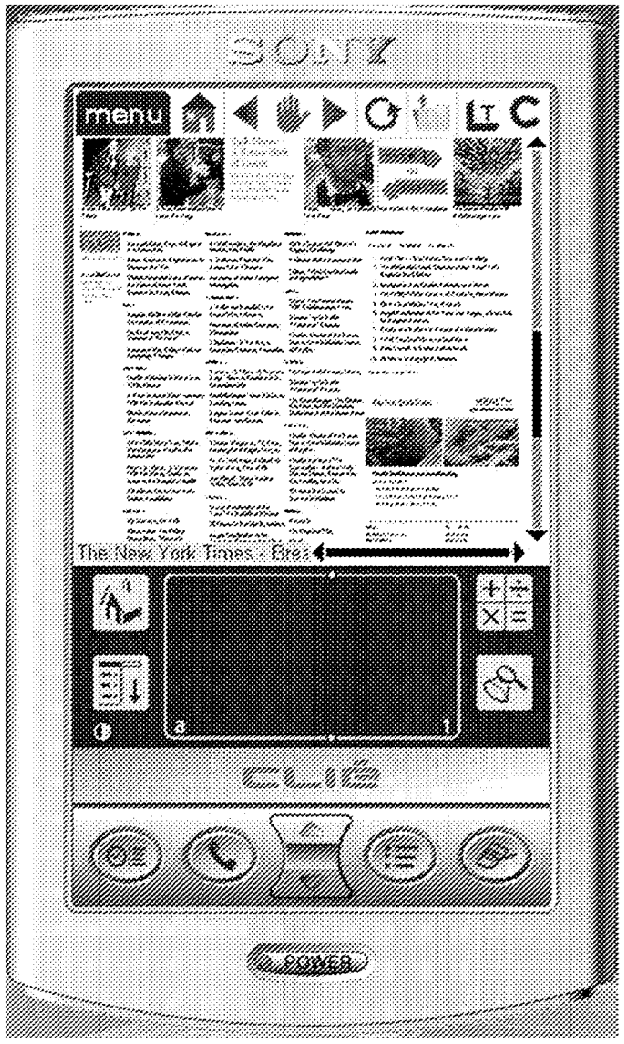
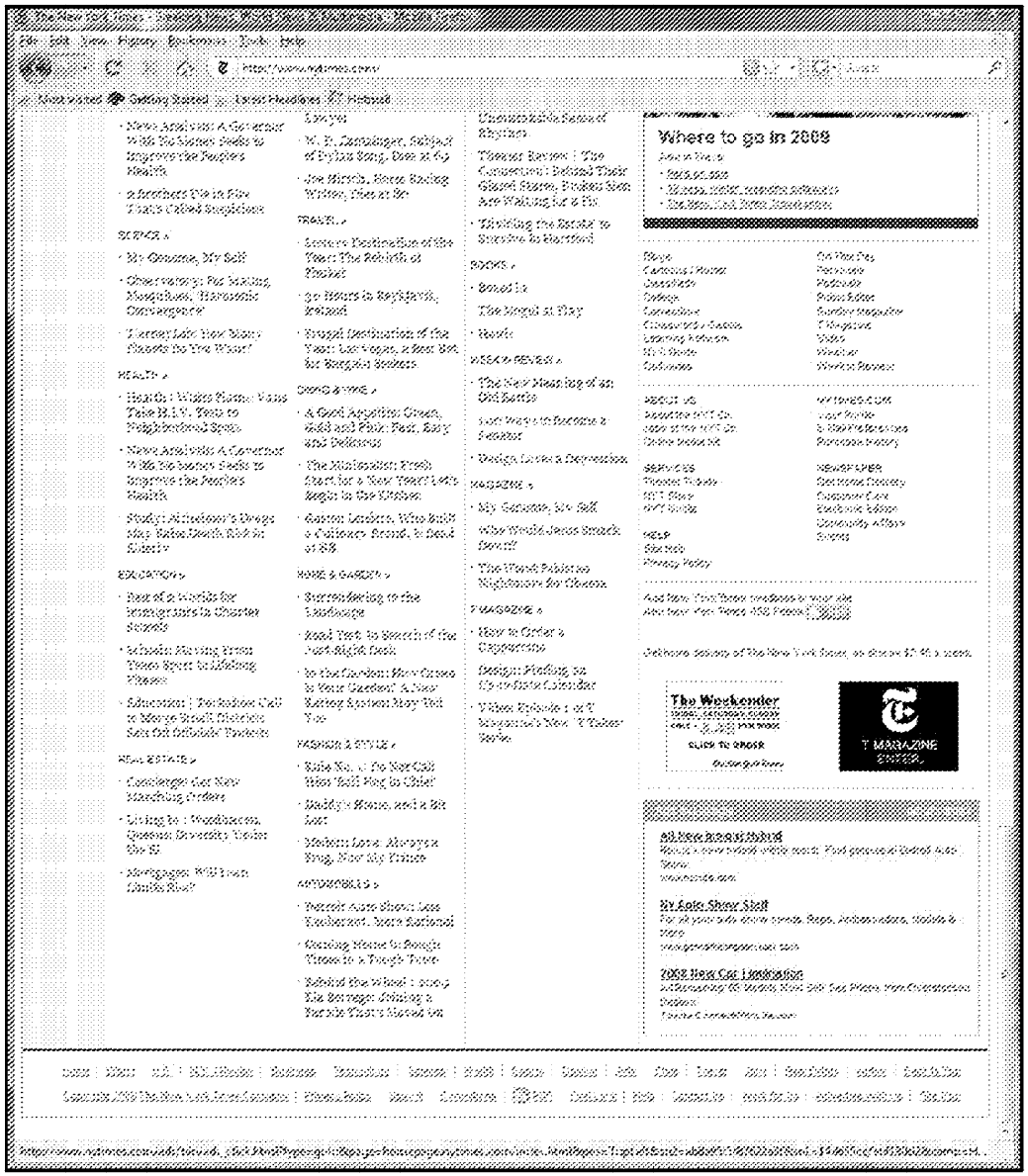

menu
The New York Times - Front
POWER

Fig. 2c


Where to go in 2009
The Weekender
T MAGAZINE

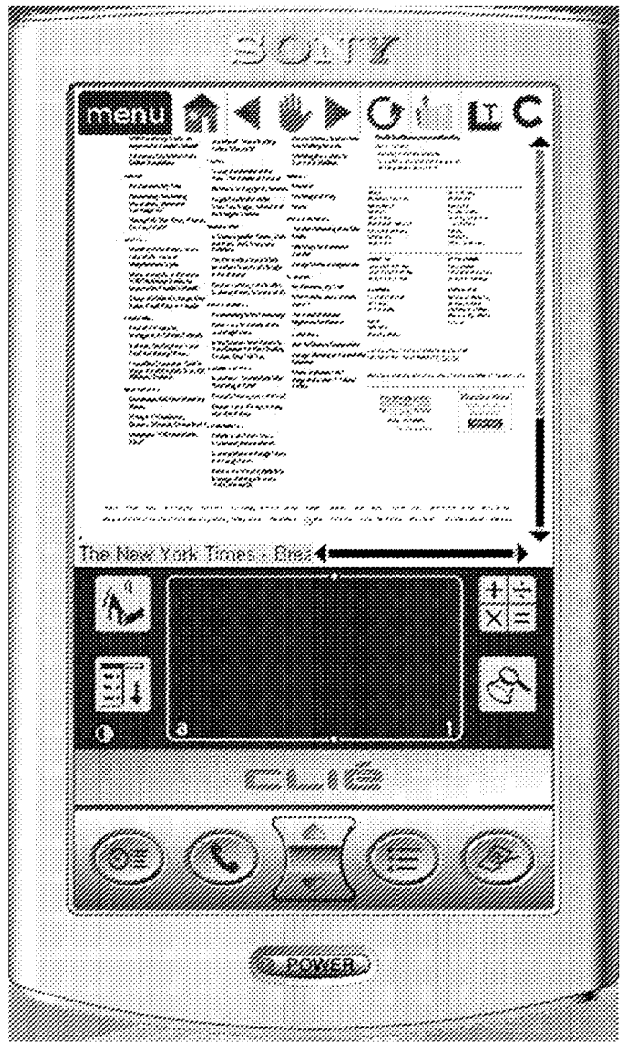

menu
The New York Times : Fire
POWER

Fig. 2d

Figs. 3a-3f show various portions of the nytimes.com Web page in a full-width view (above) and corresponding zoom views (below) using the SoftView™ implementation. The above view shows a screen capture of the emulator, while the below views comprise screen captures of just the display. As can be readily observed, each zoomed-in view preserves the original page layout and design of the Web page, as interpreted by the SoftView™ implementation.


SONY
menu
The New York Times
The New York Times - Brea
menu
The New York Times - Brea
menu
The New York Times - Brea

Fig. 3a

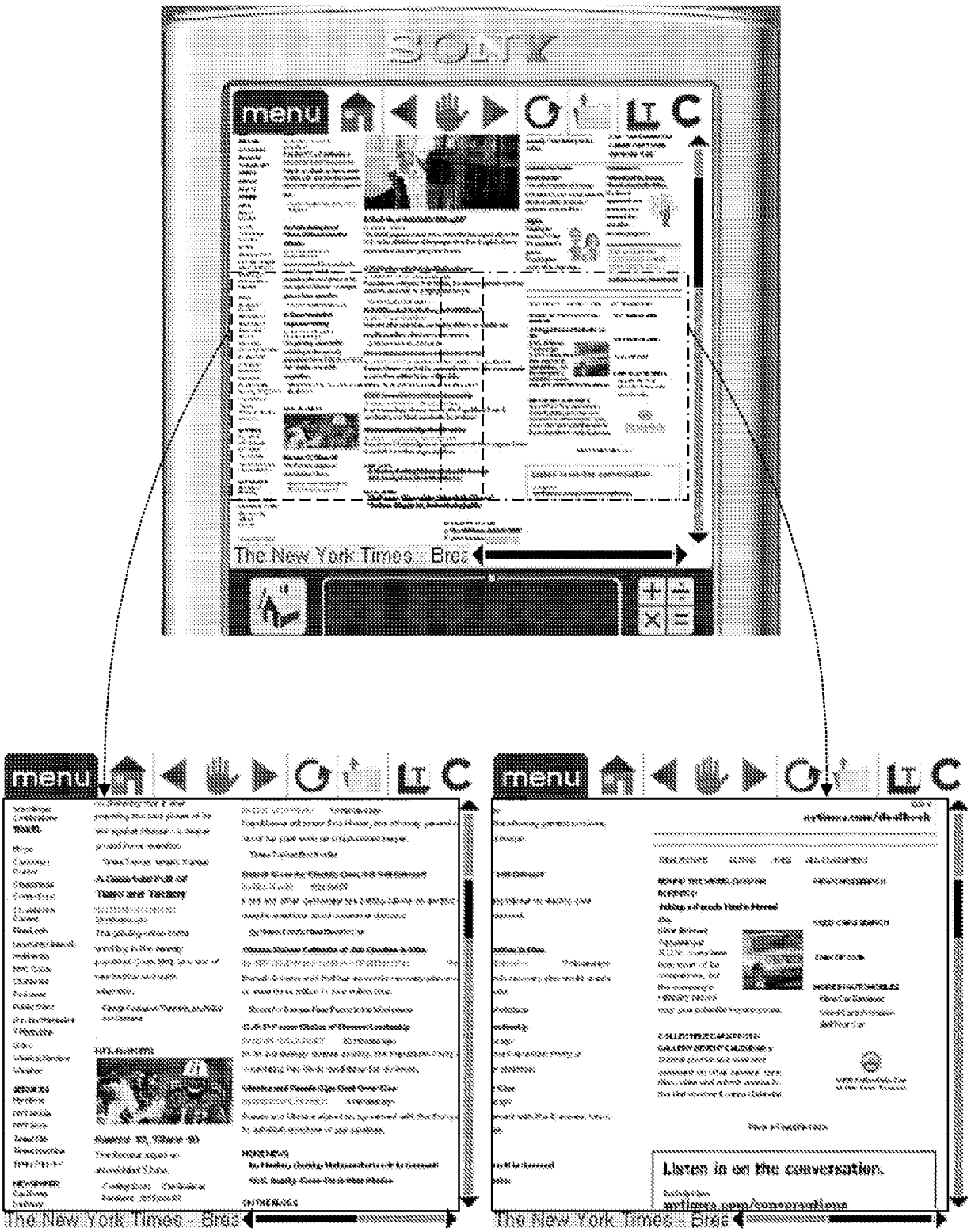

SONY
menu
The New York Times - Brea
menu
The New York Times - Brea
menu
Listen in on the conversation.
The New York Times - Brea

Fig. 3b

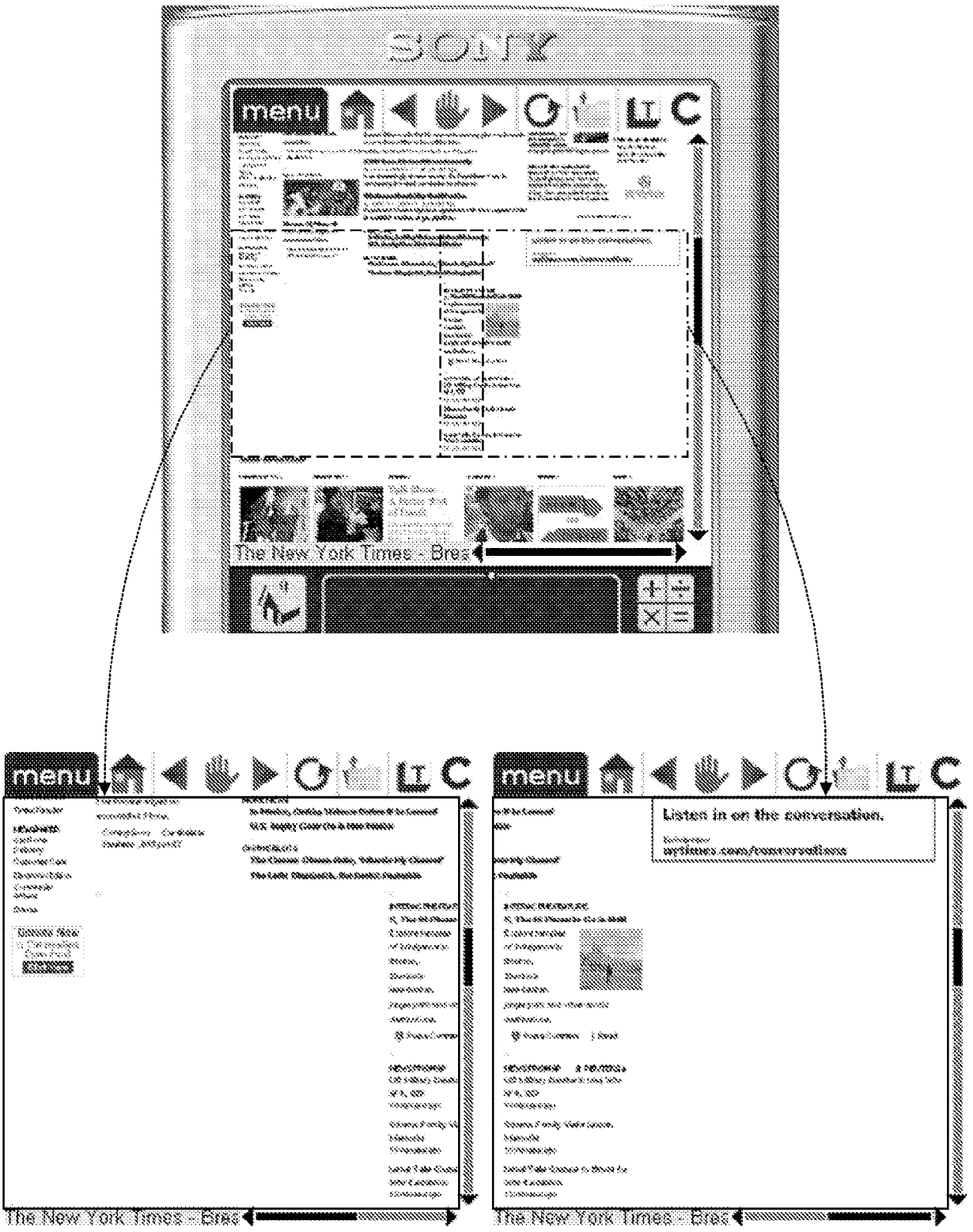

SONY
menu
The New York Times - Bres
menu
The New York Times - Bres
menu
Listen in on the conversation.
The New York Times - Bres

Fig. 3c

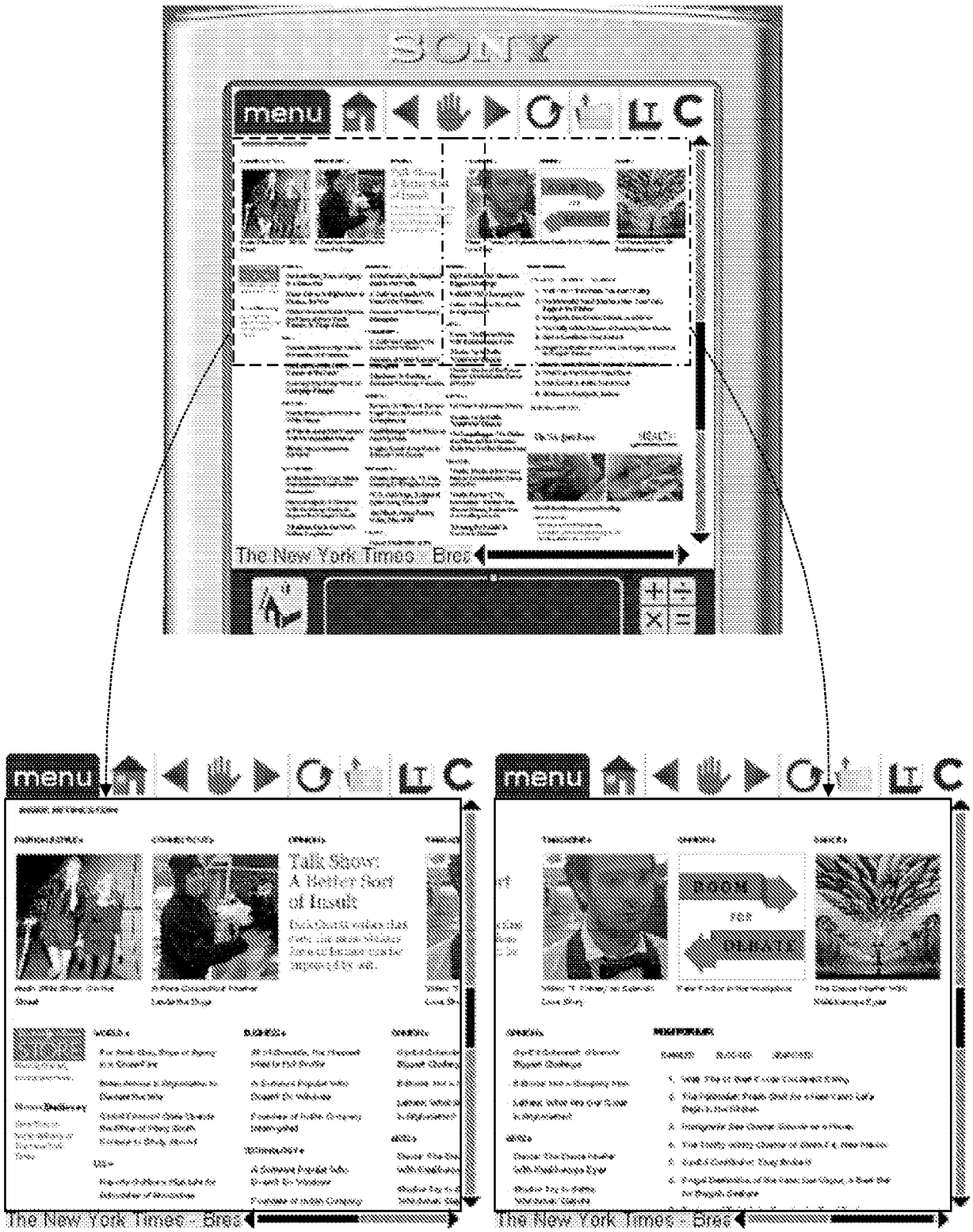

SONY
menu
The New York Times - Bres
menu
Talk Show:
A Better Sort
of Insult
The New York Times - Bres
menu
ROOM
for
DEBATE
The New York Times - Bres

Fig. 3d

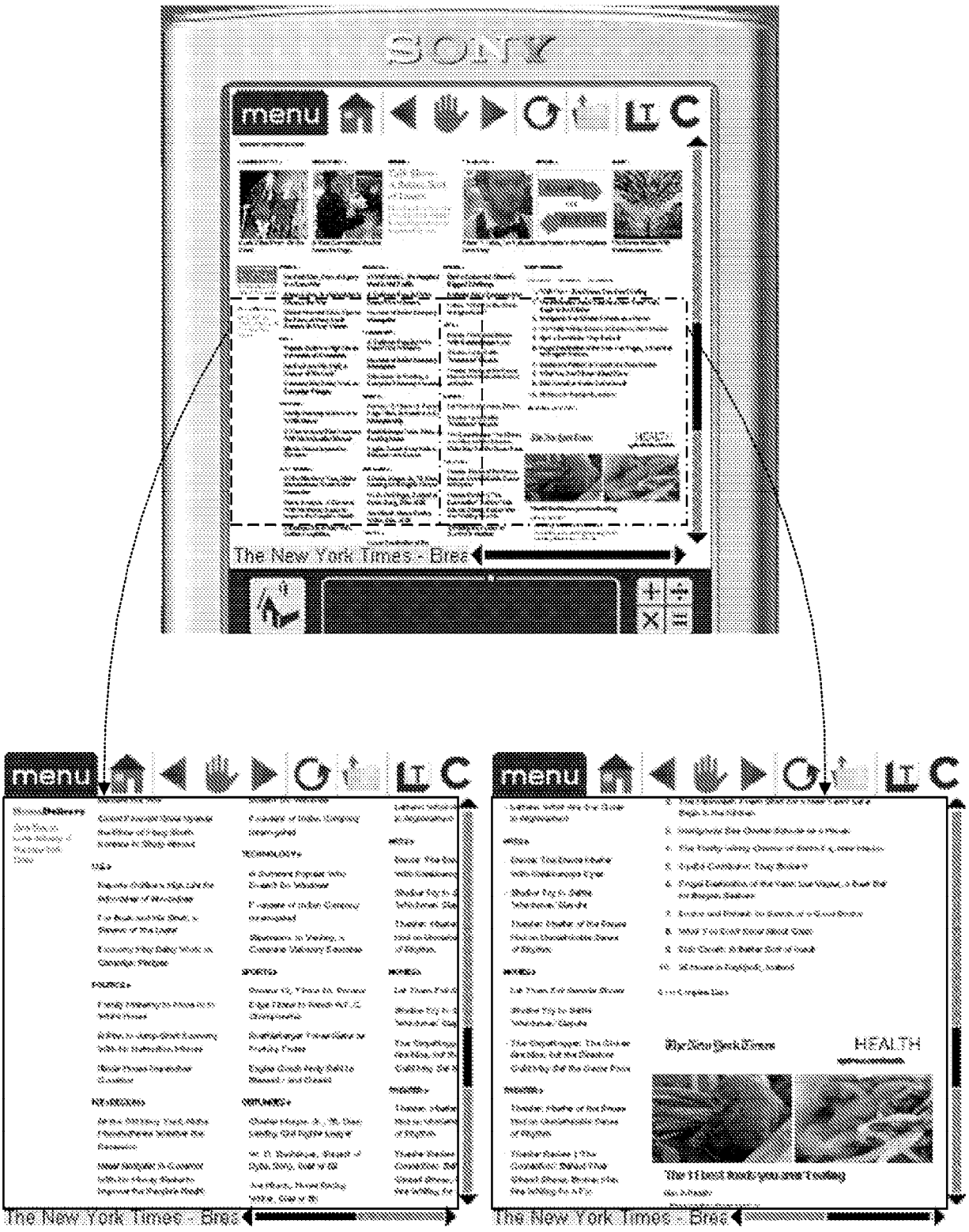

SONY
menu
The New York Times - Brea
menu
The New York Times - Brea
menu
HEALTH
The New York Times - Brea

Fig. 3e

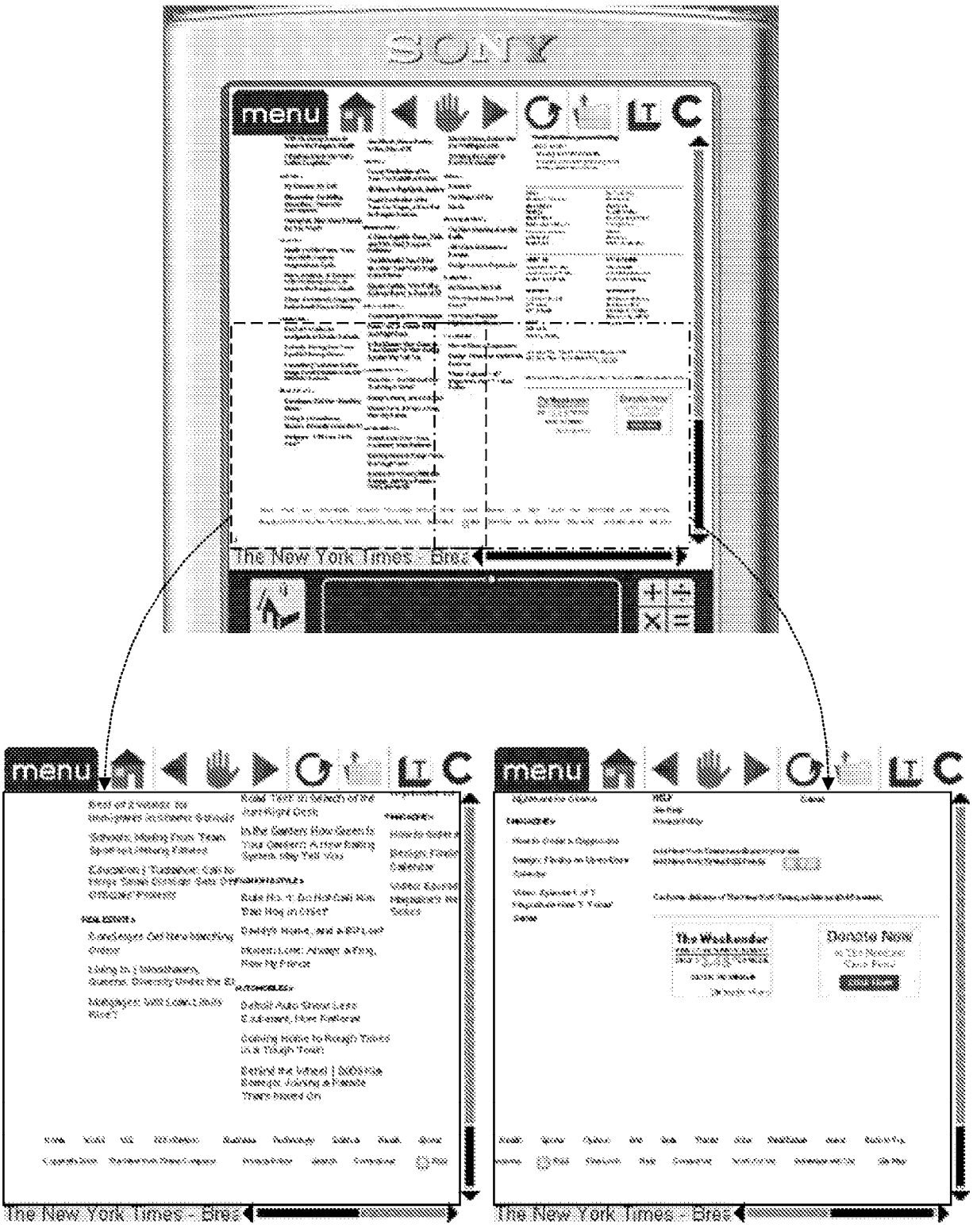

SONY
menu
The New York Times - Bres
menu
The New York Times - Bres
menu
The New York Times - Bres

Fig. 3f

Figs. 4 and 4a show various zoomed-in views of an INSIDE NYTIMES.COM content "ribbon." Figs. 5-7 show selected zoomed-in views of the upper portion of the page, while Figs. 8 and 9 show various zoomed-in portions of the bottom portion of the page. It is noted that the "Ads by Google" portion is missing on the SoftView™ browser screen shots due to a server connection timeout error (which caused this content to not be retrieved).

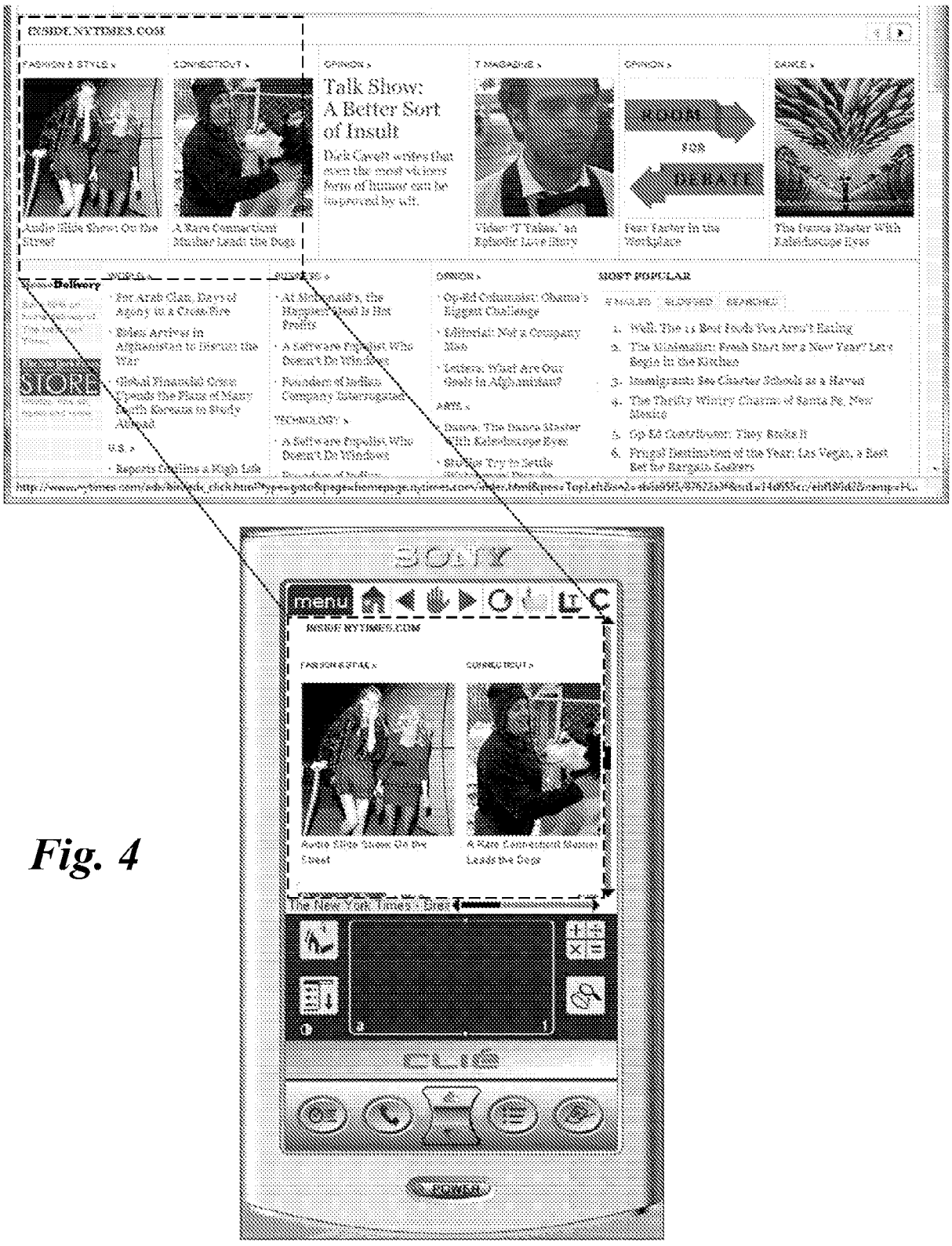

INSIDE NYTIMES.COM
Talk Show: A Better Sort of Insult
ROOM FOR DEBATE
MOST POPULAR
menu
INSIDE NYTIMES.COM
SONY

Fig. 4


Play Video
Reporter's Notebook: The Tunnels of Gaza
Listen in on the conversation.
nytimes.com/conversations
INSIDE NYTIMES.COM
FASHION & STYLE »
CONNECTICUT »
OPINION »
T MAGAZINE »
Talk Show: A Better Sort of Insult
Dick Cavett writes that even the most vicious form of humor can be improved by wit.
ROOM FOR DEBATE
DANCE »
Audio Slide Show: On the Street
A Rare Connecticut Mother Leads the Dogs
Video: 'I Takes,' an Epistolic Love Story
Four Factor in the Workplace
The Dance Master With Kaleidoscope Eyes
MOST POPULAR
STORE

Fig. 4a

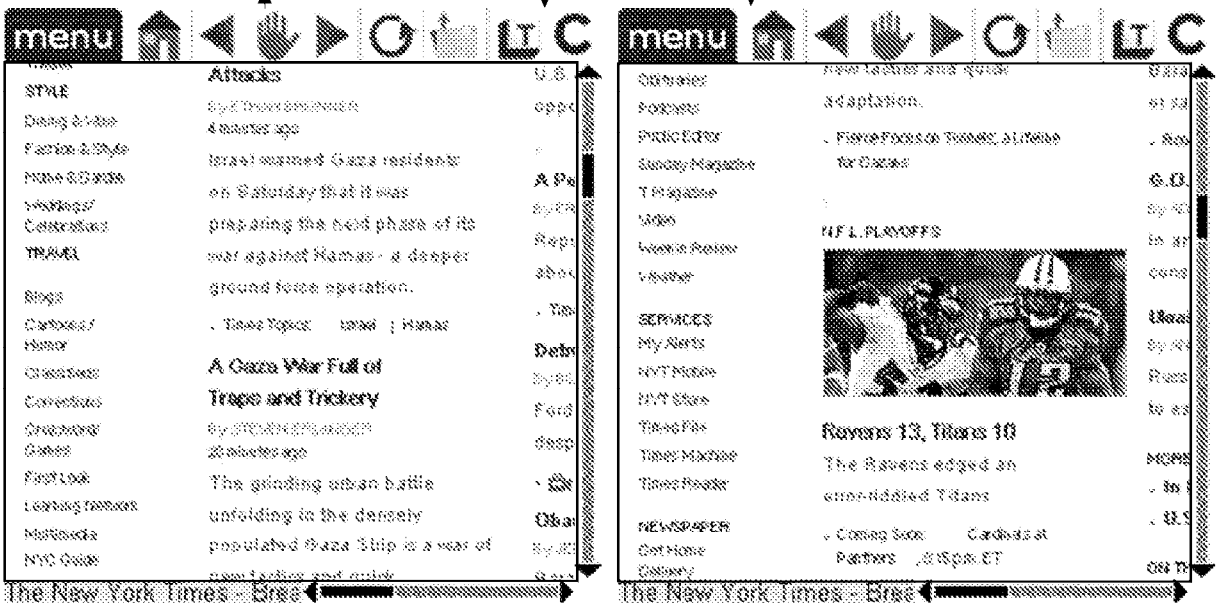

menu
INSIDE NYTIMES.COM
FASHION & STYLE »
CONNECTICUT »
Audio Slide Show: On the Street
A Rare Connecticut Mother Leads the Dogs
OPINION »
T MAGAZINE »
Talk Show: A Better Sort of Insult
Dick Cavett writes that even the most vicious form of humor can be improved by wit.
The New York Times - Brea


Fig. 5
The New York Times
U.S. Rejected Aid for Israeli Raid on Iranian Nuclear Site
As Talks Falter, Israel Warns of More Extensive Attacks
In Nashville, A Ballot to Go 'All English'
A Public Servant's Private Stint Is at Issue
Detroit Goes for Electric Cars, but Will Drivers?
OPINION
Editorial: Who Owns White House History?
IN SUNDAY'S TIMES
Book Review
YOUR MONEY
When Cash Is Scarce, There's Comfort in Miles
THE LATEST ON DEAL MAKERS AND DEAL BREAKERS
nytimes.com/dealbook
DON'T MISS HISTORY
menu
Iranian Nuclear Site
THE LATEST ON DEAL MAKERS AND DEAL BREAKERS


Fig. 6
The New York Times
U.S. Rejected Aid for Israeli Raid on Iranian Nuclear Site
In Nashville, A Ballot to Go 'All English'
As Talks Falter, Israel Warns of More Extensive Attacks
A Public Servant's Private Stint Is at Issue
Detroit Goes for Electric Cars, but Will Drivers?
DON'T MISS HISTORY IN THE MAKING
menu
In Nashville, A Ballot to Go 'All English'
A Public Servant's Private Stint Is at Issue
Detroit Goes for Electric Cars, but Will Drivers?


In Nashville, A Ballot to Go 'All English'
As Talks Falter, Israel Warns of More Extensive Attacks
A Public Servant's Private Stint Is at Issue
A Gaza War Full of Traps and Trickery
Detroit Goes for Electric Cars, but Will Drivers?
Obama Raises Estimate of Job Creation in Plan
G.O.P. Faces Choice of Diverse Leadership
Ukraine and Russia Sign Deal Over Gas
Ravens 13, Titans 10
DON'T MISS HISTORY IN THE MAKING.
November 4 was just the beginning.
Subscribe now to The New York Times and get 50% off.
Click here. ›
The New York Times
VIDEO »

Fig. 6


menu
menu
A Gaza War Full of Traps and Trickery
Ravens 13, Titans 10

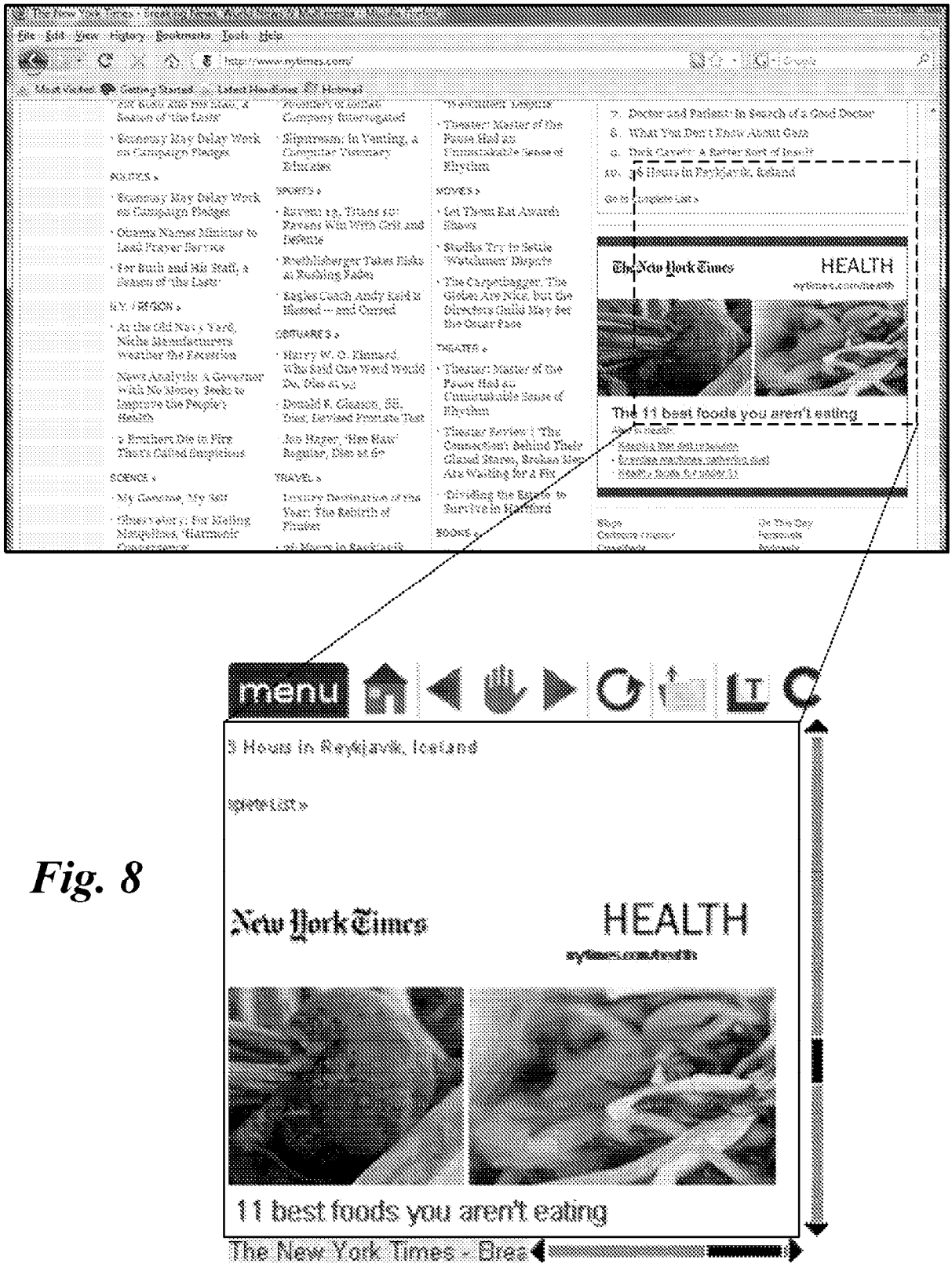

menu
3 Hours in Reykjavik, Iceland
New York Times
HEALTH
11 best foods you aren't eating
The New York Times - Brea

Fig. 8

Preservation of Functionality

The new claim language entered by Examiner's amendment introduces the term preservation of "functionality." Preserving functionality generally pertains to preserving the interoperability of various HTML-based Web page content, such as hyperlinks and UI controls such as input forms defined via corresponding HTML-based code. It is noted that the HTML code defining a Web page's overall layout, functionality and design does not define how a user interaction with the Web content is to be supported, but rather defines the existence of a corresponding function within the Web content to support the interaction. For example, a hyperlink definition within a Web page merely defines a link (hyperlink reference of *href*) to corresponding content, it does not define how the hyperlink associated control is to appear on the screen nor how the hyperlink is to be activated. That is up to the browser's implementation, which varies by browser. For example, some browsers underline text content associated with a hyperlink, while others change the appearance of a pointer when over a control (*e.g.,* text content) associated with a hyperlink (or otherwise change the appearance of such content). Moreover, how the hyperlink is activated is not defined by the corresponding HTML-based definition, but again is left to the browser implementation. Accordingly, preserving content functionality means that functionality defined by corresponding HTML code (*e.g.,* activation of a hyperlink in the present example) is supported, without limiting the particular user interface for how that activation is facilitated.

In the implementation of a zoomable browser, it may be desirable to change user interface behavior depending on a current use and/or view context. For example, the hyperlink controls of a conventional Web page designed to be viewed with a desktop browser are typically activated via the same user interface input (*e.g.,* clicking with a mouse), since all of the hyperlinks controls (on at least well-designed Web pages) are (presumably) designed to be viewable on the desktop browser (at least viewable to most users). In contrast, when the same page is rendered so as to fit on a handheld

device's display, corresponding hyperlink controls may not be readable. As a result, it may be advantageous to implement a context-based user interface that may result in a different action for the same user input depending on a current user and/or zoom context. For example, under the zoom to column, image, and paragraph user interface features disclosed in the present application, touching proximate to content associated with a hyperlink control may or may not activate the hyperlink control, depending on a current zoom level. By way of illustration, when touching content proximate to a hyperlink control that is also contained within a column when in a zoomed-out view, such as a full page view, the browser may interpret the input as an input to zoom to the column rather than an input to link to a hyperlinked reference associated with the content, particularly when the content is not readable in the current view.

One of skill in the art will recognize that the principles and teachings disclosed in the present application may be applied in a browser implementation employing one of many different rendering engines, such as but not limited to today's version of the Mozilla rendering engine (code-named "Gecko") used by the Firefox and Netscape Navigator browsers, the rendering engine employed by Microsoft Internet Explorer (code-named "Trident" (*aka* MSHTML)), or the Webkit rendering engine use by Apple's Safari browser. Since each of these rendering engines are capable of rendering the vast majority of today's Web pages[9], a browser implementing such a rendering engine in combination with the principles and teachings disclosed in the present application

---

[9] One of skill in the browser art would recognize that rendering engines do not render Web pages completely by themselves, but rather employ various support functions provided by the host operating system for particular rendering operations. Among these support functions is support for rendering text in various languages. The particular languages that are supported will vary depending on the operating system and/or extensions to the operating system (or otherwise add-on functionality provided by the browser) for rendering text of a particular language. If support for rendering text in a given language via either the operating system or a particular extension is not available, the text content in such a language will not be able to be rendered on pages that include such text content.

would likewise be capable of rendering the vast majority of billions of today's Web pages while preserving the page layout, functionality, and design of the Web pages under various zoom levels and panned views.

Scalable Vector-based Page Layout Information

The terminology "scalable vector-based page layout information" is recited in some of the allowed claims, including independent claim 1. In order to clarify the scope of this claim terminology, the following discussion is provided.

Independent Claim 1 – Scalable Vector-based page layout information

Independent claim 1 recites, in part,

> ...
>
> retrieving HTML-based Web content associated with the Web page;
>
> *translating the HTML-based Web content to produce scalable vector-based page layout information;*
>
> *employing the scalable vector-based page layout information and/or data derived therefrom to,*
>
> ...

The terminology "vector-based page layout information" refers to page layout information (that is information used to layout the page content) that includes layout objects that are mapped to a vector-based coordinate space[10], as discussed in further detail below. The claim element of "*translating the HTML-based Web content to produce scalable vector-based page layout information*" does not restrict the element to a single process or operation, but may include multiple operations. For example, claim 89 recites further details of one non-limiting embodiment of translation operations.

---

[10] The usage here of "vector-based coordinate space" is not to be limiting. In general, a vector-based coordinate space may also be commonly referred to as a vector-based drawing environment, vector-based coordinate system, a vector-based drawing system, or a virtual coordinate space or system.

In one non-limiting embodiment the element of "*translating the HTML-based Web content to produce scalable vector-based page layout information*" includes employing a rendering engine to interpret the page layout and mapping selected page layout content from a pixel-based coordinate system employed by the rendering engine to a vector-based virtual coordinate space.

This process begins by employing a rendering engine to determine page layout information that includes information from which the location for each display object (i.e., HTML element or block having content that is to be displayed) can be determined. In general, the page layout information includes information from which at least one of a datum or bounding box for each display object can be determined. In one embodiment, the page layout is interpreted using the rendering engine based on a default page width in pixels, and the location of the page layout objects is interpreted by the rendering engine are defined by corresponding pixel locations on the page. Accordingly, at this point the page layout information, such as a datum, is defined by corresponding pixel locations in a two-dimensional (XY) pixel-based coordinate space used by the rendering engine. The page layout information is further processed to generate Simple Vector Format (SVF) drawing commands to map the page layout information from the pixel-based coordinate system to a vector-based virtual coordinate space used by the SVF vector-based drawing model. Under the SVF vector-based drawing model, each coordinate point comprises a vector (i.e., a point vector). As such, the vector for each coordinate point can be scaled by applying a scale factor to the point coordinates, resulting in a transformed point (and corresponding scaled vector).

These operations may more easily be understood by an example corresponding to a simple web page, such as shown below. The exemplary web page and includes four objects: a text object comprising the text "Seattle Skyline 300x300"; a JPEG image of the Seattle skyline having an original (full scale) size of 300x300 pixels; a text object comprising the text "Seattle Skyline 640x480"; and a JPEG image of the Seattle skyline

having an original (full scale) size of 640x480 pixels. The web page also has an interpreted size of 912 pixels wide by 1026 pixels high in the example figures herein, as discussed in further detail below. The HTML for generating this web page is shown following the image. The web page was designed using Microsoft Expression Web 4 software. As such, the upper portion of the code (between the <style …> and </style> tags comprises Cascading Style Sheet style definitions. For more complex pages, the CSS style definitions may be contained in one or more separate CSS documents. Style definitions may also be defined inline (e.g., when the definition for a given element, such as a line of text, paragraph, etc.).

Seattle Skyline 300x300

Seattle Skyline 640x480

Original Web Page Layout and Design

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">

<head>
<meta content="en-us" http-equiv="Content-Language" />
<meta content="text/html; charset=utf-8" http-equiv="Content-Type" />
<title>Seattle Skyline</title>
<style type="text/css">
.auto-style1 {
	margin-left: 360px;
	margin-top: 0px;
}
.auto-style2 {
	margin-left: 72px;
	margin-top: 0px;
}
.auto-style3 {
	margin-top: 50px;
}
.auto-style4 {
	font-size: x-large;
	font-family: "Lucida Sans", "Lucida Sans Regular", "Lucida Grande", "Lucida Sans Unicode", Geneva,
Verdana, sans-serif;
	margin-left: 144px;
	margin-top: 48px;
}
.auto-style5 {
	font-family: "Lucida Sans", "Lucida Sans Regular", "Lucida Grande", "Lucida Sans Unicode", Geneva,
Verdana, sans-serif;
	font-size: x-large;
	margin-left: 360px;
	margin-top: 30px;
}
	.auto-style6 {
		border-style: solid;
		border-width: 1px;
	}

</style>
</head>

    <body style="margin-top: 10px">
	<div class="auto-style6">
		<div class="auto-style5" style="width: 284px">
		Seattle Skyline 300x300</div>
		<p class="auto-style3">
		<img alt="" class="auto-style1" height="300" src="seattle%20300x300.jpg" width="300" /></p>
		<p class="auto-style4" style="width: 284px">Seattle Skyline 640x480</p>
		<p>
		<img alt="" class="auto-style2" height="480" src="Seattle%20640x480.jpg" width="640" /></p>
	<div>
    </body>

</html>
```

Web Page HTML

The following figure shows the layout information for the page as interpreted by the Mozilla "Gecko" rendering engine. The rendering engine is part of FireFox browser (current version 3.6). An earlier version (from approximately 2000) of the Gecko rendering engine is employed for the SoftView browser screenshots herein.

It is common practice to lay out web page content using a page origin of 0,0[11] at the upper left hand corner of the page. Accordingly, web page rendering engines such as Gecko typically employ a pixel-based coordinate system having an origin at 0,0 with X values increasing to the right, and Y values increasing downward. The coordinates of the pixel-based coordinate system are integer values corresponding to the location of the pixels in a rendered page.

One of the operations performed during page layout is parsing of the HTML to identify the corresponding HTML elements. For "free-form" pages such as this example, the order of the elements affect the page layout (vertically in this case), as objects are laid out relative to other objects, as opposed to having a fixed position. Commercial pages (e.g., nytimes.com, CNN.com, WSJ.com, etc.) typically employ one or more cascading style sheets to define a more structured page layout; however, in order to not obscure the page layout concepts taught here a simple web page example is used.

Browser rendering engines typically determine page layout based on the size of the browser window content area (i.e., the portion of the browser application window in which the page content is rendered). In particular, the width of the content area is employed. Depending on the web page design, the width of the content may affect the page layout. In this particular, example, however, there are no objects that are located based on the content area width, as each of the four objects has a defined offset from

---

[11] Optionally, the page layout datum may be considered at 1, 1, representing the X, Y location of the pixel at the upper left hand corner of a content drawing area used to render page content in a browser.

the left edge of the page, as defined by corresponding HTML elements in the HTML code.

The height of the page is interpreted by aggregating the vertical dimension of the object layout in the page, as determined by the page layout interpreted by the particular rendering engine used by the browser. Different rendering engines may use different default spacing values and fonts (and/or the default fonts and sizes can be changed by a user), such that the same content may be laid out differently by the different rendering engines. In this particular example, the Gecko rendering engine determined the body block to be 1008 pixels in height. The Firefox browser window width was adjusted such that the body block was interpreted to be 896 pixels wide for reasons discussed below.

As shown in the page layout below, the Mozilla Gecko rendering engine produces page layout information using container blocks in a nested manner. HTML is coded in a hierarchical manner using HTML tags to define HTML elements (aka HTML blocks or objects). As the HTML page source is parsed, the HTML elements are identified and an element hierarchy called a tree is generated. The layout of objects within a given container block are relative to the location of the container block itself, which may further be relative to other container blocks in a layout hierarchy. In general, the html block (content between <html> and </html> tags) comprises the top level container block for the page. However, the top level container block for this example page is effectively the body block, since all content internal to the body block is laid out relative to the body block. Other typical container blocks are defined by elements, paragraph <p>element, etc.

It is typical for browsers to apply their own interpreted amount of padding (small vertical and horizontal offsets) around the body block so the edges of a page are not coincident with the edges of the content drawing area. In the case of Firefox, the padding around the body block for this example page for the top, left, right, and bottom is respectfully 10, 8, 8, and 8 pixels. Notably, the 10 pixel top margin offset is explicitly

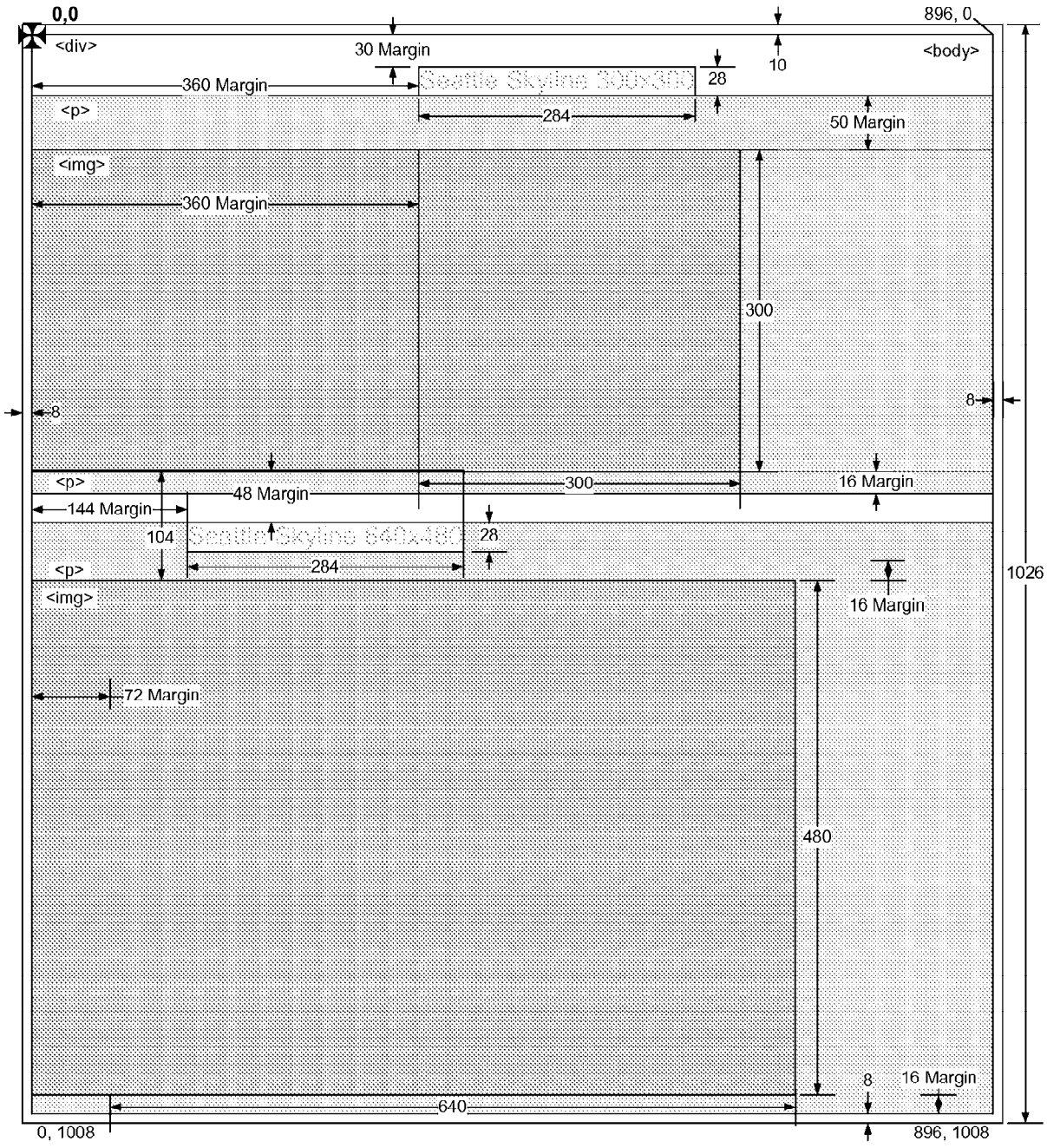
specified by the HTML, while the 8 pixels offsets appear to be default offsets employed by Firefox. Since the content in this example is laid out relative to the body block, the upper left hand corner of the body block container box is defined as the 0, 0 datum for the examples herein rather than the upper left hand corner of the page.

Under Gecko, the horizontal and vertical position of a given object relative to its container in this example web page is labeled as a "margin." This is in accordance with the CSS box model[12], which may also include parameters defining an optional border and/or and padding around the content bounding box for a given object. Each content bounding box, in turn, is defined by a width and a height. To determine the position of each object relative to a body block datum (e.g., an X, Y pixel coordinate position of 0, 0 in this example), the object's location is determined first by determining the location of its immediate container block, and then applying the applicable offsets in the X and Y directions. The container blocks themselves may be nested and/or may be stacked on top of one another vertically; accordingly, their location is determined in a similar manner. The net result is the layout of each object on the page relative to a page datum can be determined by processing the layout information determined by the rendering engine for each object relative to its containing block and aggregating the total X and Y offsets. This is commonly termed as "walking the render tree."

---

[12] See. e.g., http://www.w3.org/TR/CSS2/box.html

Motorola PX 1019a_528
FH003585



Page Layout (as interpreted by the Mozilla Gecko Rendering Engine)

In the layout, a bounding box for the "Seattle Skyline 300x300" text object is located at an X, Y datum of 360, 30 (corresponding to the upper left-hand corner of the box) and has a width of 284 pixels and a height of 28 pixels. The font and location of this text object is defined by the following HTML,

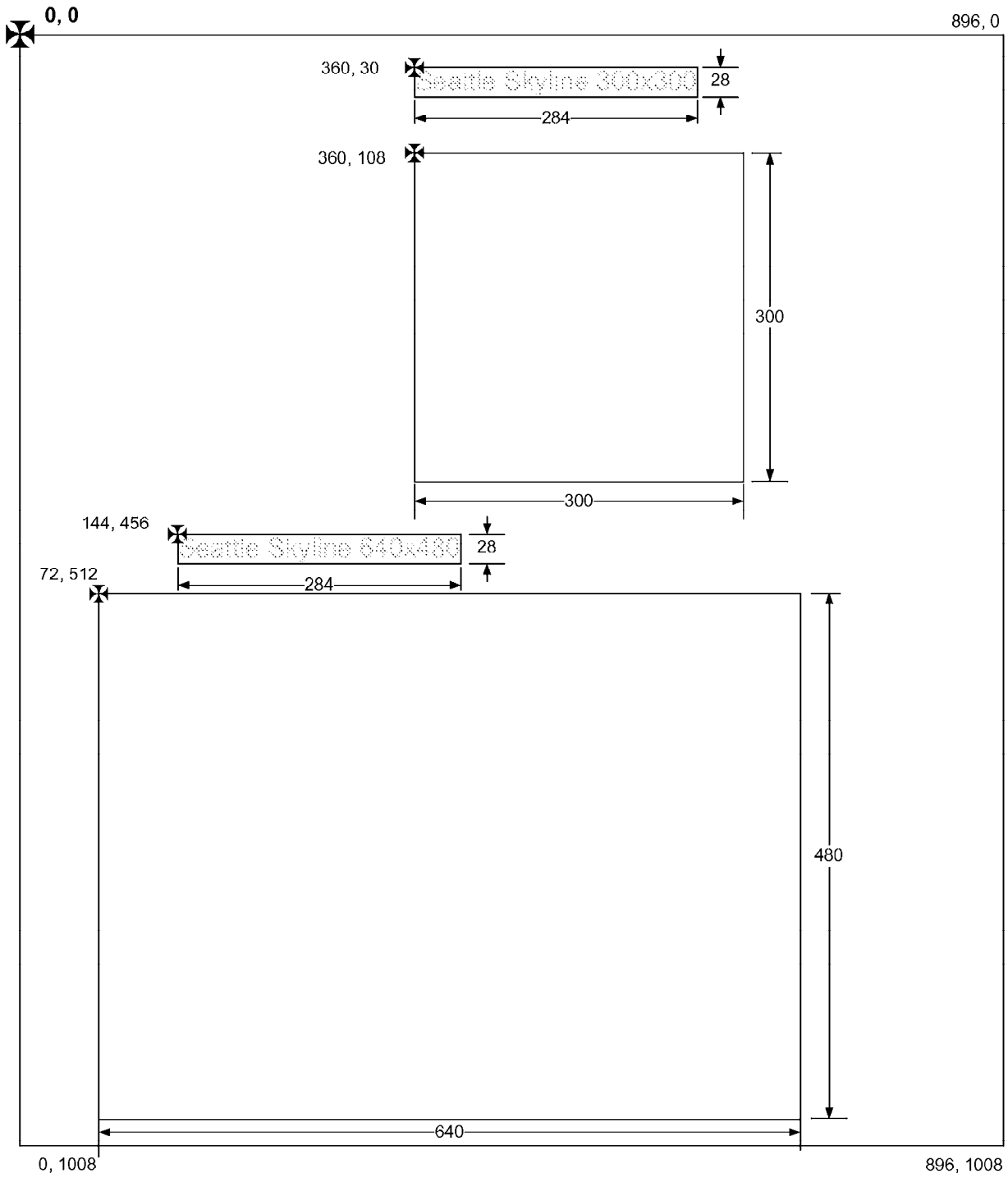
```
.auto-style5 {
	font-family: "Lucida Sans", "Lucida Sans Regular", "Lucida Grande", "Lucida Sans Unicode",
Geneva, Verdana, sans-serif;
	font-size: x-large;
	margin-left: 360px;
	margin-top: 30px;
}
```

Notably, a font size of "extra large" corresponding to this font family may be interpreted differently by different browsers. In the case of the Sony Clie examples shown herein, which employs a Palm operating system, a system font may typically be substituted for this font family. Since this web page was designed using Microsoft software, it is believed that the font definition in the HTML above is clearly understood by a Microsoft Internet Explorer browser, but may not be understood by other browsers. Moreover, the font size of "x-large" may be interpreted differently by different rendering engines.

The left and top margins are relative to the page "body" or "body block," which is the top-level container block for this page's content. In more complex web pages, there may be multiple container blocks, including nested container blocks. Under HTML, the margin offset information defines a margin offset for the object relative to each object's container block.

The layout locations for the other objects are determined in a similar manner, with the results depicted in the figure below. The object datums are depicted as X, Y pixel coordinates corresponding to the upper left-hand corner of the bounding box for each object. The selection of the upper left-hand corner is exemplary and not limiting, as the lower left-hand corner may also be used. Moreover, a combination of upper and lower left-hand corners may be employed for object datums, as long as the use for particular object types is consistent. For example, since it is common to layout text content based on a baseline location, using a lower-left hand corner for the datum for a text object bounding box may be employed by some implementations.

Motorola PX 1019a_530
FH003587



Object location derived from Mozilla Gecko Page Layout

At this stage, selected page layout information is “mapped” to the virtual coordinate space employed by SVF using corresponding SVF drawing commands.

SVF employs a "painters" model under which content is "rendered" to a virtual drawing area (*aka*, virtual drawing space or canvas) using SVF drawing commands, and content may be rendered on top of previously rendered content, much like adding paint to a canvas. SVF also employs the concept of a graphics state including current pen position under which certain types of content are rendered based on current parameters for the graphics state at a location defined by the current pen position. The position of the content is defined by one or more points included in a given drawing command and/or an existing current pen position. When using SVF double (floating point) coordinates[13], each point is defined by corresponding X and Y floating point coordinates in the SVF virtual drawing space, and a given SVF drawing command may include floating point parameters defining a location of one or more coordinate points relating to content to be rendered via processing the drawing command. As such, SVF drawing commands are deemed to have a vector format, and thus an SVF drawing command (as defined by the applicable graphics state when rendered[14]) and its embedded or referenced content comprise vector-formatted content, as used in the present application. Alternatively, SFV drawing commands and their embedded or referenced content may be referred to as vector-based content.

By default, SVF uses a conventional two-dimensional graphics coordinate system under which X values increase to the right, and Y values increase going upward. As is evident from the prior images, the Y axis is flipped from that used by the Gecko rendering engine. SVF also has a provision for flipping the Y axis (so that the coordinate system is the same as that used by Gecko). In one embodiment, the

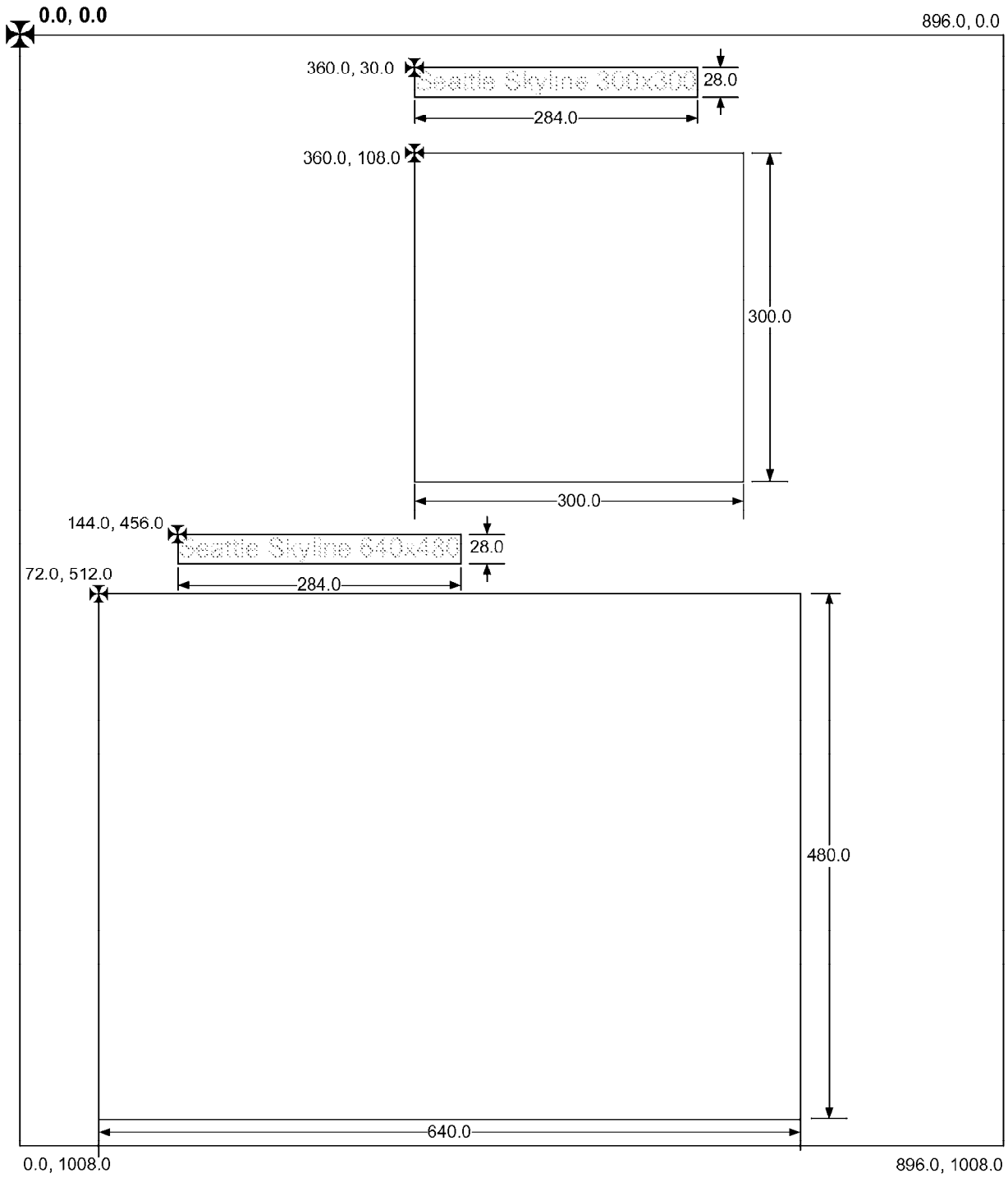
---

[13] SVF also provides support for using integer coordinates.

[14] The effective rendering instructions provided by an SVF drawing command includes the applicable context of the current graphic state at the time the drawing command is processed. For example, the graphics state context may include such things as current pen position, pen color, pen width, fill color, fill mode, font type (e.g., family and style), font size, font color, etc.

SoftView browser employs the flipped SVF coordinate system; however, it shall be understood that the default SVF coordinate system may also be used by flipping and offsetting applicable object coordinates from corresponding coordinates employed by Gecko.

In the following example, the use of SVF using its flipped coordinate system is used. As such, the pixel-based coordinates of the Gecko page layout are mapped to corresponding points in the SVF coordinate system without flipping the Y axis.



Layout Mapped to SVF Coordinate Space (Flipped Y axis to match Gecko)

In one non-limiting embodiment, the coordinates of the points corresponding to selected datums and bounding box corners are mapped from integer values corresponding to the coordinate locations in the pixel-based coordinates employed by

Gecko to corresponding floating point values in the SVF coordinate space. In one embodiment a 1:1 mapping is used, as illustrated in the figures herein; however since SVF employs floating point coordinates, other mappings could be used, as well. For example, the X,Y pixel coordinate of 360, 108 for the 300x300 image of the Seattle skyline is mapped to an X,Y coordinate of 360.0f, 108.0f (where f denotes floating point and is used here for point of illustration to indicate that these are floating point values) in the SVF coordinate space. The page layout information for other page content, such as various text and image objects, is mapped to the SVF vector-based coordinate space in a similar manner using applicable SVF drawing commands[15].

As discussed above, the content area of the Firefox browser was adjusted such that the interpreted width of the body block was 912 pixels. The reason for this was so that the following scaling operation can employ simple fractions. Suppose that the mobile device has a pixel resolution of 320 x 320 pixels, such as is the case for the Sony Clie used in the foregoing examples of nytimes.com. Of the 320 pixels in the width dimension (when oriented in a portrait position), approximately 304 pixels are used for the content area and 16 are used for a vertical scroll bar. The SoftView browser also has a default page width, which can be set by a user. In this instance, the default page width is set to 912 (pixels) such that it is three times the content area width (3 x 304 = 912).

It is desired to view the full width of the web page on this mobile device. Accordingly, a scale factor of 304/912 or 1/3 is applied to the page layout coordinate points on the SVF virtual coordinate system to generate a full page-width view having a width of 304 units. The results of this are shown in the next two figures. The first figure shows the floating point coordinate values after scaling, and the second figure

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[15]Details of SVF drawing commands are included in the SVF v2.0 specification, which may be accessed at www.svf.org/spec.html. The SVF v2.0 specification has been publically available at this web site since approximately December 1999.

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schematically shows the page layout and corresponding content being scaled by 1/3, including graphically depicting the point vectors for the object datums being scaled. Since a vector in a two-dimensional coordinate system is defined by a length and direction (i.e., angle), when a vector is scaled the length is multiplied by the applicable scale factor while the direction remains the same. This result is achieved by multiplying each of the X and Y floating point coordinate values by the same scale factor (in this case simply dividing each floating point coordinate by 3). For example, when the original datum for the 300x300 Seattle skyline image is scaled by 1/3, its X, Y coordinates are transformed from 360.0f, 108,0f to 120.0f, 36.0f, as shown below. Also, since the coordinates corresponding to the corners of the bounding boxes are scaled, the width and height dimensions of the bounding boxes are likewise scaled by the same amount. For example, the size of the bounding box for the 300x300 Seattle skyline image is 100.0f by 100.0f after being scaled by 1/3.

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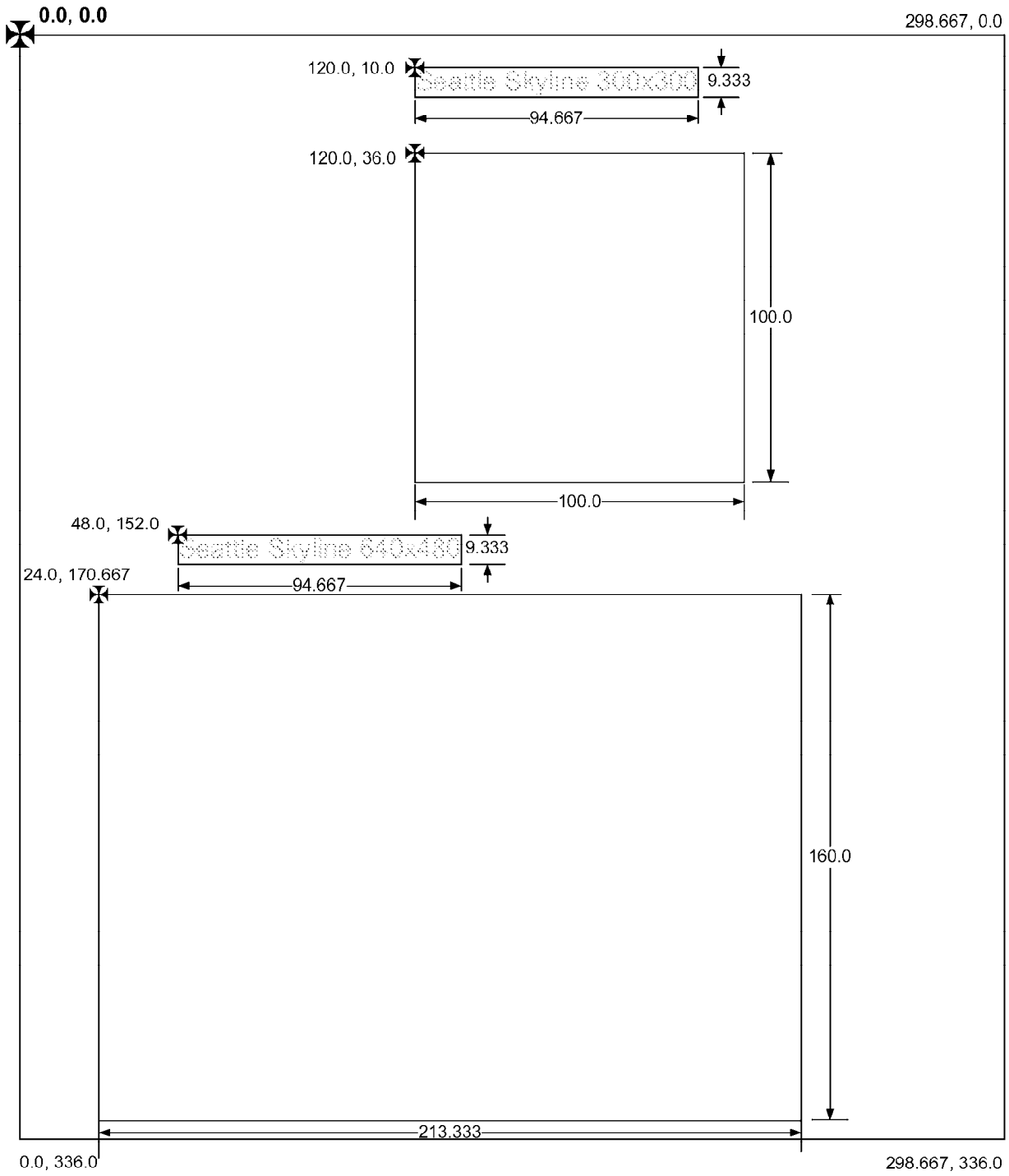
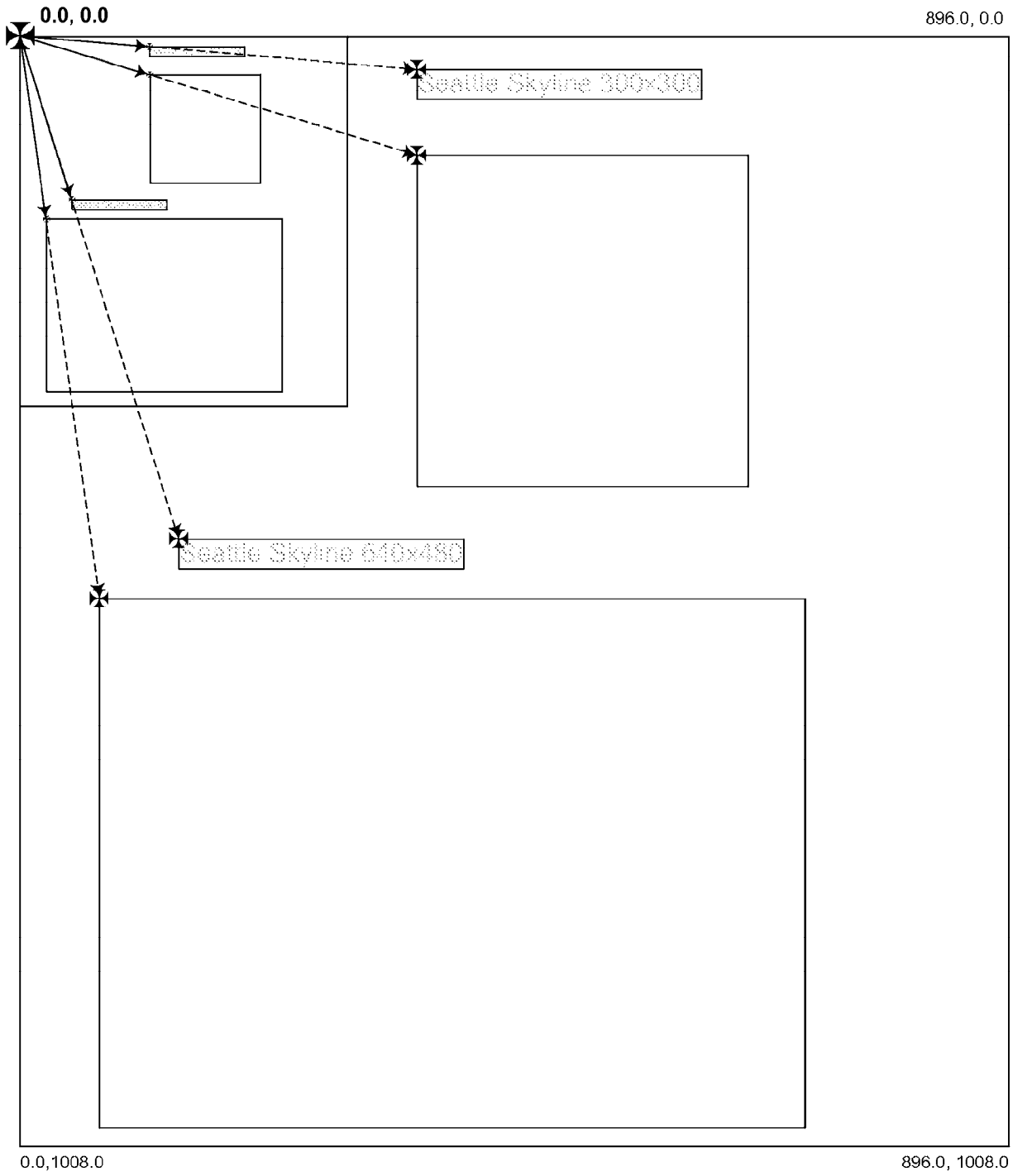


1/3 Scale – Flipped SVF Coordinates



Graphical Depiction of Objects and Layout being Scaled by 1/3

In summary, in one non-limiting embodiment the element of "*translating the HTML-based Web content to produce scalable vector-based page layout information*" includes employing a rendering engine to interpret the page layout and mapping

selected page layout coordinates from a pixel-based coordinate system to a vector-based virtual coordinate space. Once the layout information is defined by vector-based points in the virtual coordinate space, the coordinates of the layout information can be scaled to produce scaled page layout information. Scaled views of Web page content can then be generated by rendering display objects using applicable scale factors at locations defined the scaled coordinates corresponding to each display object.

Reservation of Rights

The foregoing comments are not intended to comprehensively address all issues arising from the statement of reasons for allowance. Failure to specifically object to one or more aspects of the statement of reasons for allowance is not intended to be, and should not understood to be, an acquiescence or concession with respect to the correctness of any aspect or portion of the statement of reasons for allowance.

The Examiner should infer no (i) adoption of a position with respect to patentability, (ii) change in the Applicant's position with respect to any claim or subject matter of the invention, or (iii) acquiescence in any way to any position taken by the Examiner, based on such amendments. It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not signify concession of unpatentability of the claim prior to its amendment.

Comments regarding Executable Code for Opera 3.6 and related IDS materials

During prosecution of U.S. Application Serial No. 11/045,649 (issued as U.S. Patent 7,584,423) and U.S. Application Serial No. 11/045,757 (issued as U.S. Patent

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7,451,353), the Applicant attempted to submit copies of executable code for the Opera 3.6 browser. However, both attempts were not accepted by USPTO, and it was determined that there is presently no mechanism known to the Applicant for submitting executable code for consideration, via an IDS or otherwise. In view of this, further attempts to submit the executable code for the Opera 3.6 browser have not been made in the present application or any of the co-pending family members.

In addition, various screen shots created using Opera 3.6 and corresponding discussion materials were submitted by way of IDSs in each of the '649 and '757 applications. However, these materials were inadvertently not submitted in any of the IDS submissions of the present application. Upon realizing this (shortly after receiving the Notice of Allowance) and discussing it with the Examiner (who was the same Examiner for the '649 and '757 applications and indicated he was aware of the reference materials and would consider the references if submitted in an IDS and issue a supplemental Notice of Allowance), the undersigned representative attempted to submit these materials in an IDS and accompanying letter filed June 22, 2010. In the IDS USPTO form SB/08 neither of the boxes pertaining to a statement under a 37 CFR 1.97(e)(1) or 37 CFR 1.97(e)(2) was checked since the IDS materials were known by the Applicant more than three months prior (thus both statements would be false). Rather, only the box for the fee under § 1.17 was checked, and the corresponding fee was submitted. However, since this IDS was submitted after the Notice of Allowance, a statement under 37 CFR 1.97(e) *and* the fee was required. As a result, the IDS submission was deemed non-compliant by the Patent Office.

Upon receiving notification of the non-compliant IDS submission, the undersigned representative contacted the Examiner, and the Examiner indicated again that he was aware of the Opera 3.6 related materials and further indicated that the allowed claims were patentable over these materials. Accordingly, it is clear that the

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Exhibit 3G

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(12) **United States Patent**
Rohrabaugh et al.

(10) **Patent No.: US 7,584,423 B2**
(45) **Date of Patent: Sep. 1, 2009**

(54) **METHOD, PROXY AND SYSTEM TO SUPPORT FULL-PAGE WEB BROWSING ON HAND-HELD DEVICES**

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(73) Assignee: **Gary Rohrabaugh**, Bellingham, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 209 days.

(21) Appl. No.: **11/045,649**

(22) Filed: **Jan. 28, 2005**

(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Division of application No. 09/878,097, filed on Jun. 8, 2001, now Pat. No. 7,210,099, which is a continuation-in-part of application No. 09/828,511, filed on Apr. 7, 2001, now abandoned.

(60) Provisional application No. 60/211,019, filed on Jun. 12, 2000, provisional application No. 60/217,345, filed on Jul. 11, 2000.

(51) **Int. Cl.**
G06F 17/00 (2006.01)

(52) **U.S. Cl.** **715/238**; 715/234; 715/243

(58) **Field of Classification Search** 715/234, 715/238, 243

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,615,384	A	3/1997	Allard et al.
5,897,644	A	4/1999	Nielsen
5,952,994	A	9/1999	Ong et al.
5,966,135	A	10/1999	Roy et al.

(Continued)

FOREIGN PATENT DOCUMENTS

GB	2344197	A	5/2000

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 60/288,287 Available on PAIR.

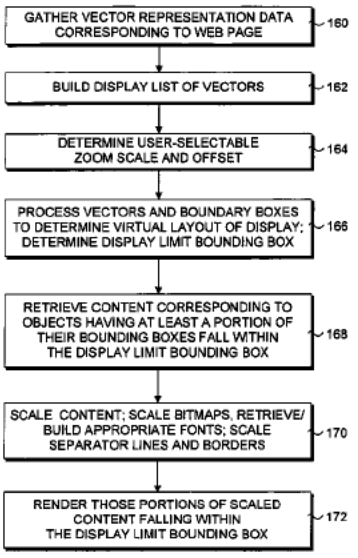
(Continued)

Primary Examiner—Thu Huynh
(74) *Attorney, Agent, or Firm*—Law Office of R. Alan Burnett

(57) **ABSTRACT**

Method, proxy, and system for enabling users of hand-held devices to perform full page browsing of Web pages with zooming and panning. A proxy or proxy server is used to process HTML-based Web content corresponding to requested Web pages in their original form and generate translated content that is configured to be processed by a browser client running on hand-held devices to support full page browsing of the Web pages with zooming and panning support while preserving the original page layout and design of the Web pages. Thus, users are enabled to use their hand-held devices to browse their favorite Web pages in a similar manner to which they are accustomed when using their desk-top browser. Moreover, since the original form of the HTML-based Web content is employed, hand-held device users are enabled to browse from among billions of Web pages available via the Internet.

47 Claims, 22 Drawing Sheets



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article by tapping on the paragraph, as shown in FIGS. **9**A and **9**B. It is noted that in some instances, the display of the paragraph may be reformatted to fit the characteristics of the display, rather than following the original format in the zoom-out view.

It is further noted that that different scaling factors can be applied to the X and Y axis so as to change the aspect ratio of the display. For example, a Web page may be designed to be displayed on a computer having a resolution of 800×600 pixels, or a 4X to 3Y aspect ratio. In this case, the display corresponds to a "landscape" layout, wherein there are more pixels along the X axis than along the Y axis. Conversely, many handheld devices display images having a "portrait" layout, wherein there are more pixels along the Y axis than the X axis. By enabling different scaling factors to be applied to the X and Y axes, the present invention enables the aspect ratio of a rendered display image to be adjusted to better fit the aspect ratio of the client device.

An Exemplary Computer Architecture

An exemplary machine in the form of a computer system **500** in which features of the present invention may be implemented will now be described with reference to FIG. **10**. Computer system **500** may represent a workstation, host, server, print server, or printer controller. Computer system **500** comprises a bus or other communication means **501** for communicating information, and a processing means such as processor **502** coupled with bus **501** for processing information. Computer system **500** further comprises a random access memory (RAM) or other dynamic storage device **504** (referred to as main memory), coupled to bus **501** for storing information and instructions to be executed by processor **502**. Main memory **504** also may be used for storing temporary variables or other intermediate information during execution of instructions by processor **502**. Computer system **500** also comprises a read only memory (ROM) and/or other static storage device **506** coupled to bus **501** for storing static information and instructions for processor **502**.

A data storage device **507** such as a magnetic disk or optical disc and its corresponding drive may also be coupled to bus **501** for storing information and instructions. Computer system **500** can also be coupled via bus **501** to a display device **521**, such as a cathode ray tube (CRT) or Liquid Crystal Display (LCD), for displaying information to an end user. Typically, an alphanumeric input device **522**, including alphanumeric and other keys, may be coupled to bus **501** for communicating information and/or command selections to processor **502**. Another type of user input device is cursor control **523**, such as a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor **502** and for controlling cursor movement on display **521**.

A communication device **525** is also coupled to bus **501**. Depending upon the particular presentation environment implementation, the communication device **525** may include a modem, a network interface card, or other well-known interface devices, such as those used for coupling to Ethernet, token ring, or other types of physical attachment for purposes of providing a communication link to support a local or wide area network, for example. In any event, in this manner, the computer system **500** may be coupled to a number of clients and/or servers via a conventional network infrastructure, such as a company's Intranet and/or the Internet, for example.

Importantly, the present invention is not limited to having all of the routines located on the same computer system. Rather, individual objects, program elements, or portions thereof may be spread over a distributed network of computer systems. Additionally, it is appreciated that a lesser or more equipped computer system than the example described above may be desirable for certain implementations. Therefore, the configuration of computer system **500** will vary from implementation to implementation depending upon numerous factors, such as price constraints, performance requirements, and/or other circumstances. For example, according to one embodiment of the present invention, a cell phone or a hand held computer may comprise only a processor or a micro controller and a memory, such as a micro code ROM or RAM, for storing static or dynamically loaded instructions and/or data.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A method comprising:

receiving a request from a mobile phone hosting a browser client to access a Web page having content comprising a plurality of objects including text objects and image objects and having an original format comprising HTML-based Web content defining an original page layout and design of the content on the Web page;

routing the request through a proxy server associated with the browser client that is configured to retrieve and translate HTML-based Web content associated with the Web page into translated content that supports a scalable resolution-independent representation of the Web page that preserves the original page layout and design of the Web page content for each of multiple zoom levels employing respective scale factors when the translated content and/or content derived therefrom is scaled and rendered on the browser client, wherein the translated content is configured to be received and processed by the browser client to enable a user of the mobile phone to perform full page browsing of the web page with zooming and panning while preserving the original page layout and design of the Web page content; and

facilitating, at least in part, return of the translated content to the mobile phone.

2. The method of claim **1**, further comprising:

receiving a request for the Web page including a URL (uniform resource locator) for the Web page; and

routing the request for the Web page to the proxy server rather than an Internet site corresponding to the URL.

3. The method of claim **1**, further comprising:

receiving the translated content from the proxy server; and

sending the translated content to the mobile phone.

4. The method of claim **1**, wherein the proxy server is operated by a service provider for the mobile phone.

5. The method of claim **1**, wherein the proxy server is operated by a third party separate from a service provider for the mobile phone.

6. The method of claim **1**, wherein the translated content includes scalable page layout information defining a layout location for each of the plurality of objects.

7. The method of claim **1**, wherein the translated content includes scalable vector-based graphics content.

8. The method of claim **1**, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the original page layout and design of the Web page, and the translated content is configured, when processed by the browser client, to preserve the original Web

page and design aspects associated with the cascaded style sheet data at each zoom level and panned view.

9. A method, comprising:

receiving a request from a hand-held wireless device running a browser client to access a Web page having content comprising a plurality of objects including text objects and image objects and having an original format comprising HTML-based Web content defining an original page layout and design of the content on the Web page;

sending a request to a proxy associated with the browser client to provide translated content associated with the Web page and generated from the HTML-based Web content and configured to be received and processed by the browser client to produce a scalable resolution-independent representation of the Web page that preserves the original page layout and design of the Web page content for each of multiple zoom levels employing respective scale factors when the translated content and/or content derived therefrom is scaled and rendered by the browser client to enable a user of the hand-held wireless device to perform full page browsing of the web page with zooming and panning while preserving the original page layout and design of the Web page content;

receiving the translated content from the proxy; and

sending the translated content to the hand-held wireless device.

10. The method of claim 9, wherein the request from the hand-held wireless device includes information identifying a type of translated content capable of being rendered by the browser client.

11. The method of claim 10, further comprising:

identifying a proxy capable of providing translated content of the type identified by the information; and

sending the request to provide the translated content to the proxy that is identified.

12. The method of claim 9, wherein the Web page includes at least one hyperlink, and the translated content is configured to enable the hyperlink to be selected from a Web page rendered via the browser client when in a zoomed state.

13. The method of claim 9, wherein the request for accessing the Web page from the hand-held wireless device includes indicia used to route the request to a proxy server operated by the proxy, the method further comprising routing the request to the proxy server based on the indicia.

14. The method of claim 9, further comprising:

maintaining information identifying a type of translated content capable of being rendered by the browser client; and

requesting translated content from the proxy corresponding to the type of translated content capable of being rendered by the browser client.

15. The method of claim 9, wherein the translated content includes scalable page layout information defining a layout location for each of the plurality of objects.

16. The method of claim 9, wherein the translated content includes scalable vector-based graphics content.

17. The method of claim 9, wherein the Web page includes HTML-based code defining an original page layout of display content within the Web page, wherein the original page layout defines a layout location for the plurality of objects, including text objects, graphic layout objects, and image objects included in the Web page, and wherein the translated content includes, for each object, a scalable vector identifying a layout location of an object datum associated with the object.

18. The method of claim 17, wherein the translated content further includes scalable data defining a bounding box for the content associated with each object.

19. The method of claim 9, wherein the Web page includes an image, and the translated content includes a compressed form of the image.

20. The method of claim 9, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the original page layout and design of the Web page, and the translated content is configured, when processed by the browser client, to preserve the original Web page and design aspects associated with the cascaded style sheet data at each zoom level and panned view.

21. A method for providing translated content associated with a Web page to mobile clients serviced by a mobile service provider, each mobile client comprising a hand-held device, the method comprising:

receiving, via mobile telecommunications infrastructure operated by the mobile service provider, a request from a mobile client to access a Web page, the Web page having display content comprising a plurality of objects including text objects and image objects and including HTML-based code defining an original page layout and design of the display content within the Web page, the request including a URL for the Web page;

forwarding a translation request to a proxy to provide translated content associated with the Web page, the translated content including object content and scalable page layout information associated with the object content derived from the HTML-based code, the translation request identifying the URL for the Web page;

receiving the translated content from the proxy; and

sending the translated content to the mobile client,

wherein the translated content is configured to be received and processed by a browser client associated with the proxy and running on the mobile client to enable a user of the mobile client to perform full page browsing of the web page with zooming at multiple zoom levels employing respective scale factors and panning while preserving the original page layout and design of the Web page display content.

22. The method of claim 21, wherein the translated content includes scalable page layout information, text content, and image content, the method further comprising:

sending the scalable page layout information and text content to the mobile client prior to sending the image content.

23. The method of claim 21, further comprising:

receiving a first request from a first mobile client to access a Web page;

forwarding a corresponding translation request to the proxy to provide translated content associated with the Web page;

receiving the translated content from the proxy;

caching the translated content;

receiving a second request from a second mobile client to access the Web page; and

sending the translated content that is cached to the second mobile client to service the second request.

24. The method of claim 21, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the original page layout and design of the Web page, and the translated content is configured, when processed by the browser client, to preserve the original Web page and design aspects associated with the cascaded style sheet data at each zoom level and panned view.

25. A method, comprising:

at a proxy server, and in response to a request originating at a browser client associated with the proxy server to access a Web page, the Web page having content comprising a plurality of objects including text objects and image objects and comprising HTML-based Web content having an original format defining an original page layout and design of the content on the Web page,

retrieving the HTML-based Web content and processing the HTML-based Web content to generate translated content that is configured to be processed via the browser client to support full page browsing on a hand-held device running the browser client under which a user of the hand-held device is enabled to browse the Web page at various zoom levels and panned positions while the original page layout and design of the Web page content is preserved; and

performing at least one of initiating return of or returning the translated content to the browser client.

26. The method of claim 25, wherein the Web page includes at least one hyperlink, the method further comprising:

in response to receiving information from the browser client identifying a selection of a hyperlink made by the user via the browser client,

retrieving and translating Web content associated with the hyperlink at the proxy server to produce additional translated content; and

performing at least one of initiating return of or returning the additional scalable translated to the browser client.

27. The method of claim 25, wherein the translated content is configured to enable the Web page to be displayed at different resolutions via the browser client by re-rendering a display of the Web page using different respective scale factors, wherein the original page layout and design of the Web page content are preserved at each of the different resolutions.

28. The method of claim 25, wherein the Web page includes at least one column and the translated content includes column layout information that is configured to be employed by the browser client to enable a user to zoom on a column of the Web page via a corresponding user input.

29. The method of claim 25, wherein the translated content includes image layout information that is configured to be employed by the browser client to enable a user to zoom on an image of the Web page via a corresponding user input.

30. The method of claim 25, wherein the Web page includes at least one paragraph of text content and the translated content includes paragraph layout information that is configured to be employed by the browser client to enable a user to zoom on a paragraph of the Web page via a corresponding user input.

31. The method of claim 25, further comprising

sending translated content corresponding to the text objects to the browser client via a first connection; and

sending content corresponding to at least one image to the browser client via a second connection.

32. The method of claim 31, wherein the hand-held device comprises a mobile phone.

33. The method of claim 25, further comprising:

retrieving an image associated with the Web page in an original format that is not scalable;

converting the image into a scalable format; and

including the scalable format of the image as part of the translated content.

34. The method of claim 25, further comprising using an encryption-based security scheme in communications between the proxy server and the browser client.

35. The method of claim 25, further comprising:

generating translated content corresponding to a Web page in response to a first access request for the Web page originating from a first browser client;

caching the translated content at the proxy server; and

in response to a second access request for the Web page originating from a second browser client;

returning an instance of the translated content that is cached to the second browser client.

36. The method of claim 25, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the original page layout and design of the Web page, and the translated content is configured, when processed by the browser client, to preserve the original Web page and design aspects associated with the cascaded style sheet data at each zoom level and panned view.

37. The method of claim 25, wherein the proxy server is configured to retrieve and translate HTML-based Web content associated with billions of respective Web pages to generate corresponding translated content to enable users of browser clients to browse, zoom, and pan the billions of Web pages in a manner that preserves the original layout and design of the HTML-based Web page content of each Web page.

38. The method of claim 25, further comprising:

parsing HTML-based code corresponding to the Web page to determine the original page layout of display content within the Web page, wherein the original page layout defines a layout location for the plurality of objects included in the Web page; for each object,

defining object vector data corresponding to the layout location for the object; and

creating a reference that links the object to the object vector data that is generated; and

including the object vector data and the references in the translated content.

39. The method of claim 25, wherein a portion of the translated content comprises vector-based content.

40. The method of claim 25, further comprising providing the browser client to a user.

41. The method of claim 40, wherein the translated content includes scalable text content, and the browser client is configured to scale a scalable font to render the scalable text content.

42. The method of claim 41, wherein the browser client is configured to perform operations via execution of Java-based instructions.

43. The method of claim 25, wherein the translated content has a size that is reduced by at least 50% relative to the HTML-based content corresponding to the Web page in its original format.

44. The method of claim 25, wherein the translated content has a size that is reduced by at least ⅔ relative to the HTML-based content corresponding to the Web page in its original format.

45. A system, comprising:

a proxy server comprising a computer system having at least one processor; and

a browser client, associated with the proxy server;

wherein the proxy server is configured to execute software on said at least one processor to enable the proxy server to,

receive a request originating at the browser client to access a Web page, the Web page having content comprising a

plurality of objects including text objects and image objects and comprising HTML-based Web content having an original format defining an original page layout and design of the content on the Web page; and

retrieve the HTML-based Web content and process the HTML-based Web content to generate translated content that is configured to be processed via the browser client,

and wherein the browser client is configured to run on a hand-held device and process the translated content to support full Web page browsing with zooming and panning by enabling a user of the hand-held device to browse the Web page at multiple zoom levels employing respective scale factors and at various panned positions while the original page layout and design of the Web page content is preserved.

46. The system of claim **45**, wherein a portion of the HTML-based Web content comprises cascaded style sheet data defining aspects of the original page layout and design of the Web page, and the translated content is configured, when processed by the browser client, to preserve the original Web page and design aspects associated with the cascaded style sheet data at each zoom level and panned view.

47. The system of claim **45**, wherein the proxy server is configured to retrieve and translate HTML-based Web content associated with billions of respective Web pages to generate corresponding translated content to enable users of browser clients to browse, zoom, and pan the billions of Web pages in a manner that preserves the original layout and design of the HTML-based Web page content of each Web page.

* * * * *

Exhibit 3H

US007844889B2

(12) **United States Patent**
Rohrabaugh et al.

(10) **Patent No.: US 7,844,889 B2**
(45) **Date of Patent: Nov. 30, 2010**

(54) **RESOLUTION INDEPENDENT DISPLAY OF INTERNET CONTENT**

(75) Inventors: **Gary B. Rohrabaugh**, Bellingham, WA (US); **Scott A. Sherman**, Seattle, WA (US)

(73) Assignee: **SoftView LLC**, Bellingham, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 848 days.

(21) Appl. No.: **11/735,482**

(22) Filed: **Apr. 15, 2007**

(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Continuation of application No. 09/878,097, filed on Jun. 8, 2001, now Pat. No. 7,210,099, which is a continuation-in-part of application No. 09/828,511, filed on Apr. 7, 2001, now abandoned, application No. 11/735,482, which is a division of application No. 09/878,097, filed on Jun. 8, 2001, now Pat. No. 7,210,099, and a division of application No. 11/045,757, filed on Jan. 28, 2005, now Pat. No. 7,461,353, and a division of application No. 11/045,649, filed on Jan. 28, 2005, now Pat. No. 7,584,423.

(60) Provisional application No. 60/211,019, filed on Jun. 12, 2000, provisional application No. 60/217,345, filed on Jul. 11, 2000.

(51) **Int. Cl.**
G06F 17/00 (2006.01)

(52) **U.S. Cl.** **715/200**; 715/234; 715/243; 715/253

(58) **Field of Classification Search** 715/800, 715/238, 249, 205, 234
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,615,384 A 3/1997 Allard et al.

(Continued)

FOREIGN PATENT DOCUMENTS

GB 0009129.8 4/2000

(Continued)

OTHER PUBLICATIONS

Jones et al. "From the large screen to the small screen—retaining the designer's design for effective user interaction," IEEE Colloquium on Issues for Networked Interpersonal Communicators, May 1997, pp. 3/1-3/4.

(Continued)

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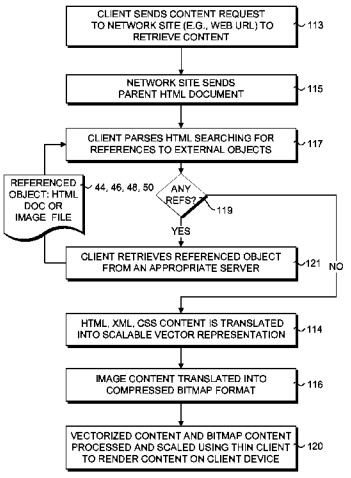
(57) **ABSTRACT**

Apparatus, methods and software for creating resolution-independent display of Internet (Web) content to allow Web pages to be scaled (zoomed) and panned for better viewing and/or to fit any resolution or screen size. According to one aspect, novel client-side processing of markup language-based Web content is provided that employs a rendering engine to interpret original page layout information. The page layout information is scaled and employed to enable the Web content to be rapidly rendered, zoomed, and panned. According to another aspect, display lists are generated to provide further enhancements in rendering speed. According to other aspects, bounding boxes are generated and scaled to lay out text and/or images on scaled Web content that is used to facilitate browsing of Web pages with zooming and panning.

115 Claims, 22 Drawing Sheets



ratio of a rendered display image to be adjusted to better fit the aspect ratio of the client device.

An Exemplary Computer Architecture

An exemplary machine in the form of a computer system **500** in which features of the present invention may be implemented will now be described with reference to FIG. **10**. Computer system **500** may represent a workstation, host, server, print server, or printer controller. Computer system **500** comprises a bus or other communication means **501** for communicating information, and a processing means such as processor **502** coupled with bus **501** for processing information. Computer system **500** further comprises a random access memory (RAM) or other dynamic storage device **504** (referred to as main memory), coupled to bus **501** for storing information and instructions to be executed by processor **502**. Main memory **504** also may be used for storing temporary variables or other intermediate information during execution of instructions by processor **502**. Computer system **500** also comprises a read only memory (ROM) and/or other static storage device **506** coupled to bus **501** for storing static information and instructions for processor **502**.

A data storage device **507** such as a magnetic disk or optical disc and its corresponding drive may also be coupled to bus **501** for storing information and instructions. Computer system **500** can also be coupled via bus **501** to a display device **521**, such as a cathode ray tube (CRT) or Liquid Crystal Display (LCD), for displaying information to an end user. Typically, an alphanumeric input device **522**, including alphanumeric and other keys, may be coupled to bus **501** for communicating information and/or command selections to processor **502**. Another type of user input device is cursor control **523**, such as a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor **502** and for controlling cursor movement on display **521**.

A communication device **525** is also coupled to bus **501**. Depending upon the particular presentation environment implementation, the communication device **525** may include a modem, a network interface card, or other well-known interface devices, such as those used for coupling to Ethernet, token ring, or other types of physical attachment for purposes of providing a communication link to support a local or wide area network, for example. In any event, in this manner, the computer system **500** may be coupled to a number of clients and/or servers via a conventional network infrastructure, such as a company's Intranet and/or the Internet, for example.

Importantly, the present invention is not limited to having all of the routines located on the same computer system. Rather, individual objects, program elements, or portions thereof may be spread over a distributed network of computer systems. Additionally, it is appreciated that a lesser or more equipped computer system than the example described above may be desirable for certain implementations. Therefore, the configuration of computer system **500** will vary from implementation to implementation depending upon numerous factors, such as price constraints, performance requirements, and/or other circumstances. For example, according to one embodiment of the present invention, a cell phone or a hand held computer may comprise only a processor or a micro controller and a memory, such as a micro code ROM or RAM, for storing static or dynamically loaded instructions and/or data.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A method comprising:

in response to a request to access a Web page made via a wireless hand-held device including a display,

retrieving markup language-based Web content associated with the Web page having an original format defining an original page layout of content on the Web page, the content including text content, a plurality of hyperlinks, and a plurality of images;

processing, via the wireless hand-held device, the markup language-based Web content with a rendering engine to generate page layout information corresponding to the original page layout of content on the Web page as interpreted by the rendering engine including a width of the Web page;

employing the page layout information to generate scalable page layout information; and

employing scalable page layout information and/or data derived therefrom to generate views of the Web page on the display, including,

a view under which the width of the Web page is fully displayed; and

views of the Web page generated in response to associated user inputs to enable a user to iteratively zoom in on a portion of the Web page while preserving the original page layout, functionality, and design of the content on the Web page defined by the markup language-based Web content,

wherein preservation of the functionality defined by the markup language-based content includes preservation of hyperlink functionality.

2. The method of claim **1**, wherein re-rendering views of the Web page is performed in real-time.

3. The method of claim **1**, wherein the display of the wireless hand-held device comprises a touch-sensitive display configured to receive user inputs to control display of the Web page.

4. The method of claim **1**, further comprising:

enabling the user to select a hyperlink; and, in response thereto,

retrieving and processing markup language-based Web content associated with the hyperlink to produce additional scalable page layout information; and

employing the additional scalable page layout information and/or data derived therefrom to generate a view of the Web content associated with the hyperlink.

5. The method of claim **1**, further comprising:

parsing and processing markup language code with the rendering engine to determine the original page layout of display content within the Web page as interpreted by the rendering engine, wherein the original page layout defines a layout location for a plurality of objects, including text objects associated with the text content and image objects associated with the plurality of images included in the Web page; and

for each object,

defining an object datum corresponding to the layout location for the object on the original page layout; and

associating the object and its object datum.

6. The method of claim **5**, further comprising translating at least one image object from an original format into a scalable format.

30. The method of claim 1, further comprising reformatting a text object so as to fit the text object on the display when it is rendered.

31. The method of claim 1, further comprising:

generating a view under which the width of the Web page is fit across the display.

32. The method of claim 1, wherein in a view at least one image is scaled.

33. The method of claim 1, further comprising maintaining at least one instance of the page layout information in a manner that is independent of zoom levels used to view the web page.

34. The method of claim 1, wherein the scalable page layout information comprises scalable vector-based page layout information.

35. The method of claim 34, wherein scaling operations are effected by applying a mathematical transformation to a plurality of points in a two-dimensional coordinate system comprising X and Y axes, including points comprising datum points having corresponding vectors included in the scalable vector-based page layout information defining page layout locations of corresponding text and image objects mapped to the two-dimensional coordinate system, wherein the mathematical transformation comprises,

$$X'=X*SF;$$

$$Y'=Y*SF;$$

wherein X, Y is the location of a point prior to transformation, X', Y' is the location of the point after transformation, and SF is the scale factor.

36. The method of claim 35, wherein the mathematical transformation is applied to points in a first coordinate system comprising a resolution independent coordinate system associated with a virtual display area onto which page layout information is mapped to a second coordinate system comprising a device coordinate system corresponding to a pixel resolution of the display, wherein points are mapped from the first coordinate system to the second coordinate system using the mathematical transformation.

37. The method of claim 1, wherein the markup language-based Web content includes cascading style sheet content defining layout and presentation attributes for the Web page.

38. The method of claim 1, wherein the markup language-based Web content comprises HTML-based Web content that is processed by the rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine.

39. The method of claim 1, wherein the Web page content includes a plurality of images, the method further comprising:

generating page layout information including a bounding box for each of the plurality of images;

scaling the bounding box associated with an image to produce a scaled bounding box; and

rendering bitmap content associated with the image to fit within the scaled bounding box.

40. The method of claim 1, wherein text content in a view is rendered to have a resolution that is approximately proportional to the zoom level of the view, such that as the zoom level increases the resolution of text content increases approximately proportionally.

41. The method of claim 1, wherein the layout of content for views associated with a zoom level is effected by scaling page layout information using a scale factor associated with the zoom level.

42. An apparatus comprising a hand-held mobile device, including:

a processor,

a communications device operatively coupled to the processor, to enable the apparatus to be wirelessly linked to a network to access Web content;

a display; and

storage means, operatively coupled to the processor, in which a plurality of instructions, including instructions corresponding to a browser having a rendering engine and instructions corresponding to an operating system, are stored that when executed by the processor enable the apparatus to perform operations including,

in response to a request to access a Web page made via a user of the apparatus,

retrieving markup language-based Web content associated with the Web page having an original format defining an original page layout, functionality and design of content on the Web page, the content including text content, a plurality of hyperlinks, and a plurality of images;

processing the markup language-based Web content with the rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine including a width of the Web page; and

employing scaled page layout information and/or data derived therefrom to generate views of the Web page on a display, including,

a view under which the width of the Web page is fit across the display; and

views of the Web page generated in response to associated user inputs to enable a user to iteratively zoom in on a portion of the Web page while preserving the original page layout, functionality, and design of the content on the Web page defined by the markup language-based Web content,

wherein preservation of the functionality defined by the markup language-based content includes preservation of hyperlink functionality.

43. The apparatus of claim 42, wherein zooming views of the Web content is enabled to be performed in real-time.

44. The apparatus of claim 42, wherein the hand-held mobile device comprises a mobile phone.

45. The apparatus of claim 42, wherein execution of the instructions performs further operations comprising:

enabling the user to select a hyperlink; and, in response thereto,

retrieving and processing the markup language-based Web content associated with the hyperlink to produce additional layout information; and

employing the additional page layout information and/or data derived therefrom to generate a view of the Web content associated with the hyperlink.

46. The apparatus of claim 42, wherein execution of the instructions performs further operations comprising:

parsing and processing markup language code with the rendering engine to determine the original page layout of display content within the Web page as interpreted by the rendering engine, wherein the original page layout defines a layout location for a plurality of objects, including text objects associated with the text content

69. The apparatus of claim 42, wherein the Web page includes text content and graphic layout objects, and views are generated through use of scaled text content and graphic layout objects.

70. The apparatus of claim 42, wherein in a generated view at least one image from is scaled.

71. The apparatus of claim 42, wherein the display comprises a touch-sensitive display configured to receive user inputs to control display of the Web page.

72. The apparatus of claim 42, wherein the storage means comprises a flash memory.

73. The apparatus of claim 42, wherein the markup language-based Web content comprises HTML-based Web content that is processed by the rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine.

74. The apparatus of claim 42, wherein the network comprises a mobile service provider network and the hand-held mobile device comprises a mobile phone.

75. The apparatus of claim 42, wherein text content in a view is rendered to have a resolution that is approximately proportional to the zoom level of the view, such that as the zoom level increases the resolution of text content increases approximately proportionally.

76. The apparatus of claim 42, wherein the layout of content for views associated with a zoom level is effected by scaling page layout information using a scale factor associated with the zoom level.

77. A tangible non-transitory machine-readable medium having stored thereon a plurality of instructions comprising a browser including a rendering engine configured to be executed by a wireless hand-held device having a display and an operating system and configured to access Web content via a network, wherein execution of the instructions in conjunction with execution of the operating system enables the machine to perform operations comprising:

in response to a request to access a Web page made via a user of the machine,

retrieving markup language-based Web content associated with the Web page having an original format defining an original page layout, functionality and design of content on the Web page, the content including text content, a plurality of hyperlinks, and a plurality of images;

processing the markup language-based Web content with the rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine including a width of the Web page;

employing the page layout information to generate scalable page layout information; and

employing the scalable page layout information and/or data derived therefrom to generate views of the Web page on the display, including,

a view under which the width of the Web page is fully displayed; and

views of the Web page generated in response to associated user inputs to enable a user to iteratively zoom in on a portion of the Web page while preserving the original page layout, functionality, and design of the content on the Web page defined by the markup language-based Web content,

wherein preservation of the functionality defined by the markup language-based content includes preservation of hyperlink functionality.

78. The machine-readable medium of claim 77, wherein zooming the views of the Web content is enabled to be performed in real-time.

79. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

enabling a user to select a hyperlink; and, in response thereto,

retrieving and processing the markup language-based Web content associated with the hyperlink to produce additional scalable page layout information; and

employing the additional scalable-page layout information and/or data derived therefrom to generate a view of the Web content associated with the hyperlink.

80. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

parsing and processing markup language code with the rendering engine to determine the original page layout of display content within the Web page as interpreted by the rendering engine, wherein the original page layout defines a layout location for a plurality of objects, including text objects associated with the text content and image objects associated with the plurality of images included in the Web page; and

for each object,

defining an object datum corresponding to the layout location for the object on the original page layout; and

associating the object and its object datum.

81. The machine-readable medium of claim 80, wherein execution of the instructions performs further operations comprising translating at least one image object from an original format into a scalable format.

82. The machine-readable medium of claim 80, wherein execution of the instructions performs further operations comprising:

associating attribute information including a color and typefont for each text object; and

employing the attribute information to render text content corresponding to text objects shown in views of the Web page.

83. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising enabling the Web content to be displayed at different resolutions by scaling the scalable page layout information to determine corresponding layout locations for the Web content on at least a portion of a scaled Web page for each of a plurality of scale factors.

84. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

enabling a user of the wireless hand-held device to select an object of the display to zoom in on via the display; and in response thereto,

re-rendering the display such that content associated with the object is rendered to fit across a width of the display.

85. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising scaling the scalable page layout information and/or data derived therefrom to regenerate views of the Web content in response to associated user inputs to enable the user to iteratively zoom in and out a display of the Web page.

86. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising enabling a user to pan a view of the Web page in response to a corresponding user input.

87. The machine-readable medium of claim 86, wherein execution of the instructions performs further operations comprising enabling the view of the Web page to be panned in real-time.

88. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a column of the Web content via an associated user input, wherein in response to the user input, the view is re-rendered such that content corresponding to the selected column is displayed across the display.

89. The machine-readable medium of claim 88, wherein the user input comprises tapping the column.

90. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising enabling a user to zoom on an image, wherein in response to the user input, the view is re-rendered such that the image is displayed to fit across at least one of a width and height of the display.

91. The machine-readable medium of claim 90, wherein the user input comprises tapping the image.

92. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising enabling a user to zoom on a paragraph of the Web content via an associated user input, wherein in response to the user input, the view is re-rendered such that content corresponding to the selected paragraph is displayed across the display.

93. The machine-readable medium of claim 92, wherein the user input comprises tapping the paragraph.

94. The machine-readable medium of claim 92, wherein the content of the paragraph is reformatted when the view is re-rendered.

95. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

generating a display list; and

employing the display list to generate views of the Web page.

96. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

parsing and processing, with the rendering engine, markup language code corresponding to the received Web content to determine page layout information corresponding to an original page layout of the content on the Web page as interpreted by the rendering engine, the content including a plurality of objects comprising text objects associated with the text content and image objects associated with the plurality of images, wherein for each object the layout information includes object layout information identifying a coordinate location of the object on the page layout; and

associating each object and its object layout information.

97. The machine-readable medium of claim 96 wherein execution of the instructions performs further operations comprising:

generating page layout information including an object bounding box for each object, the object bounding box representing a portion of the page layout occupied by the object's associated content.

98. The machine-readable medium of claim 96, wherein execution of the instructions performs further operations comprising:

for each of the plurality of objects,

mapping the coordinate location associated with the object layout information for the object to a corresponding object datum coordinate on a virtual display area employing a resolution-independent coordinate system.

99. The machine-readable medium of claim 98, wherein execution of the instructions performs further operations comprising:

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan position corresponding to a view of the Web content desired by a user;

determining a virtual display bounding box for the virtual display area associated with the first scale factor and offset;

identifying objects having at least a portion falling within the virtual display bounding box; and

applying an applicable scale factor to the object's content to render a view corresponding to the zoom level and pan position on the display.

100. The machine-readable medium of claim 98, wherein the virtual display area is associated with a fixed reference frame.

101. The machine-readable medium of claim 77, wherein the content includes a plurality of text objects having associated text content, and wherein execution of the instructions performs further operations comprising:

for at least a portion of the plurality of text objects,

scaling a scalable font to render the text content associated with the text object.

102. The machine-readable medium of claim 77, wherein the content includes a plurality of text objects having associated text content, and wherein execution of the instructions performs further operations comprising:

for at least a portion of the plurality of text objects,

determining an applicable font size based on an applicable scale factor associated with a zoom level; and

selecting a corresponding bitmapped font and employing the bitmapped font to render the text content associated with the text object.

103. The machine-readable medium of claim 77, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

104. The machine-readable medium of claim 77, wherein execution of the instructions performs further operations comprising:

generating a view under which the width of the Web page is fit across the display.

105. The machine-readable medium of claim 77, wherein the Web page includes text content and graphic layout objects, and in generated views the text content and graphic layout objects are scaled.

106. The machine-readable medium of claim 77, wherein at least one view at least one image is scaled.

107. The machine-readable medium of claim 77, wherein text content in a view is rendered to have a resolution that is approximately proportional to the zoom level of the view, such that as the zoom level increases the resolution of text content increases approximately proportionally.

108. A method comprising:

in response to a request to access a Web page made via a mobile hand-held device,

retrieving HTML-based Web content associated with the Web page having an original format defining an original page layout, functionality, and design of content on the Web page, the content including text content, a plurality of hyperlinks, and a plurality of images;

processing the HTML-based Web content with a rendering engine to generate page layout information corresponding to the original page layout as interpreted by the rendering engine;

employing scaled page layout information and/or data derived therefrom to generate scaled Web page content at multiple scale factors; and

employing the scaled Web page content to enable a user to browse the Web page at multiple zoom levels on the mobile hand-held device while preserving the original page layout, functionality, and design of the content on the Web page defined by the HTML-based Web content as interpreted by the rendering engine,

wherein preservation of the functionality includes preservation of hyperlink functionality, and wherein the user is enabled to iterative zoom in on a portion of the Web page.

109. The method of claim **108**, wherein the page layout information that is generated includes a bounding box for each of the plurality of images, and wherein a scaled Web page content including one or more images is generated by scaling bounding boxes corresponding to the one or more images to produce scaled bounding boxes and, for each of the one or more images, scaling content associated with the image to produce a scaled image that fits within its corresponding scaled bounding box.

110. The method of claim **108**, further comprising:

processing the HTML-based Web content with the rendering engine to parse the text content into a plurality of text objects;

generating page layout information including a bounding box for each of the plurality of text objects; and

employing page layout information associated with the bounding boxes to effect preservation of the original page layout of the text content.

111. The method of claim **110**, further comprising:

scaling bounding boxes for text objects corresponding to text content in a view; and

employing the scaled bounding boxes to lay out corresponding text content within the scaled bounding boxes.

112. The method of claim **111**, further comprising:

employing a scalable font to scale text content for a text object to fit within a scaled bounding box.

113. The method of claim **111**, further comprising:

in conjunction with rendering a view of the Web page content,

employing the bounding boxes and/or data derived therefrom to determine image and text objects to be rendered.

114. The method of claim **108**, further comprising:

in response to a user input to pan a current view of the Web page to a new view displaying a portion of the Web page that is entirely not shown in the current view,

generating scaled Web page content in real-time.

115. The method of claim **114**, wherein the scaled Web page content is generated in a fraction of a second.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,844,889 B2
APPLICATION NO. : 11/735482
DATED : November 30, 2010
INVENTOR(S) : Gary B. Rohrabaugh et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At Col. 6, line 34, delete "of" between "first" and "exemplary"
At Col. 7, line 3, replace "request" with "requested"
At Col. 11, line 28, replace "FlG." with "FlGS."
At Col. 12, line 25, replace "TΔX" with "TAX"
At Col. 20, line 48, add --)-- after "FlG. 7B"

ln Claim 45,
At Col. 26, line 55, add --page-- between "additional" and "layout"

ln Claim 46,
At Col. 27, line 1, please remove the "-" in "objects-associated"

ln Claim 77,
At Col. 29, line 36, replace "machine" with "device"
At Col. 29, line 38, replace "machine" with "device"

ln Claim 84,
At Col. 30, line 50, replace "of" with "on"

ln Claim 108,
At Col. 33, line 12, replace "iterative" with "iteratively"

ln Claim 109,
At Col. 33, line 16, delete "a" between "wherein" and "scaled"

Signed and Sealed this
First Day of February, 2011

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office

Exhibit 3I

US007823083B2

(12) **United States Patent**
Rohrabaugh et al.

(10) **Patent No.: US 7,823,083 B2**
(45) **Date of Patent: *Oct. 26, 2010**

(54) **METHOD, BROWSER CLIENT AND APPARATUS TO SUPPORT FULL-PAGE WEB BROWSING ON HAND-HELD DEVICES**

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(73) Assignee: **SoftView LLC**, Bellingham, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 537 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/738,932**

(22) Filed: **Apr. 23, 2007**

(65) **Prior Publication Data**

US 2007/0288855 A1 Dec. 13, 2007

Related U.S. Application Data

(63) Continuation of application No. 09/878,097, filed on Jun. 8, 2001, now Pat. No. 7,210,099, which is a continuation-in-part of application No. 09/828,511, filed on Apr. 7, 2001, now abandoned.

(60) Provisional application No. 60/211,019, filed on Jun. 12, 2000, provisional application No. 60/217,345, filed on Jul. 11, 2000.

(51) **Int. Cl.**
G06F 17/00 (2006.01)

(52) **U.S. Cl.** **715/815**; 715/249; 715/733; 715/760; 715/801

(58) **Field of Classification Search** 715/800, 715/801–802, 815, 204, 234, 143, 147, 273
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,615,384 A 3/1997 Allard et al.

(Continued)

FOREIGN PATENT DOCUMENTS

GB 0009129.8 4/2000

(Continued)

OTHER PUBLICATIONS

Schaffer et al- "Navigating Hierarchically Cluster Networks through Fisheye and Full-Zoom Methods". Mar. 24, 1998- pp. 1-20.*

(Continued)

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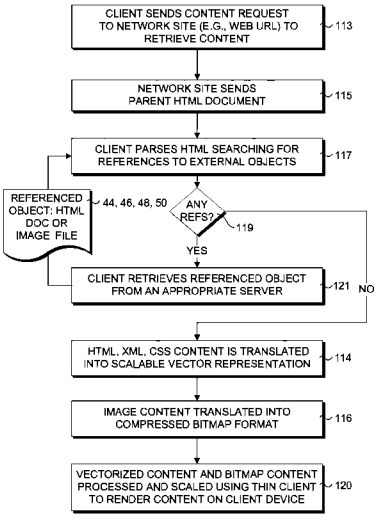
Assistant Examiner—Quoc A Tran
(74) *Attorney, Agent, or Firm*—Law Office of R. Alan Burnett

(57) **ABSTRACT**

Method, browser client, and apparatus for enabling users of hand-held devices to perform full page browsing of Web pages with zooming and panning. A proxy or proxy server is used to process HTML-based Web content corresponding to requested Web pages in their original form and generate translated content that is configured to be processed by a browser client running on hand-held devices to support full page browsing of the Web pages with zooming and panning support while preserving the original page layout and design of the Web pages. Thus, users are enabled to use their hand-held devices to browse their favorite Web pages in a similar manner to which they are accustomed when using their desktop browser. Moreover, since the original form of the HTML-based Web content is employed, hand-held device users are enabled to browse from among billions of Web pages available via the Internet.

86 Claims, 22 Drawing Sheets



The process is completed in a block **172**, wherein those portions of the scaled content falling within the display limit bounding box are rendered on the client device's display.

As discussed above, it is foreseen that the invention will be used with client devices having small, low resolution displays, such as PDAs and pocket PCs. Examples of various views of an exemplary web pages obtained from the YAHOO™ web site are shown in FIGS. **7**A-B, **8**A-B and **9**A-B. For instance, FIG. **7**A represents how the YAHOO™ home page might appear on a Palm IIIc color PDA.

In addition to directly scaling and offsetting content, the client user-interface software for PDA's provides additional functionality. For instance, a user may select to view a column (results represented in FIG. **7**B by tapping that column with a stylus, a shown in FIG. **7**A. Similarly, the user may select to zoom in on an image by tapping the image with the stylus, as shown in FIGS. **8**A and **8**B, or select to view a paragraph in an article by tapping on the paragraph, as shown in FIGS. **9**A and **9**B. It is noted that in some instances, the display of the paragraph may be reformatted to fit the characteristics of the display, rather than following the original format in the zoom-out view.

It is further noted that that different scaling factors can be applied to the X and Y axis so as to change the aspect ratio of the display. For example, a Web page may be designed to be displayed on a computer having a resolution of 800×600 pixels, or a 4X to 3Y aspect ratio. In this case, the display corresponds to a "landscape" layout, wherein there are more pixels along the X axis than along the Y axis. Conversely, many handheld devices display images having a "portrait" layout, wherein there are more pixels along the Y axis than the X axis. By enabling different scaling factors to be applied to the X and Y axes, the present invention enables the aspect ratio of a rendered display image to be adjusted to better fit the aspect ratio of the client device.

An Exemplary Computer Architecture

An exemplary machine in the form of a computer system **500** in which features of the present invention may be implemented will now be described with reference to FIG. **10**. Computer system **500** may represent a workstation, host, server, print server, or printer controller. Computer system **500** comprises a bus or other communication means **501** for communicating information, and a processing means such as processor **502** coupled with bus **501** for processing information. Computer system **500** further comprises a random access memory (RAM) or other dynamic storage device **504** (referred to as main memory), coupled to bus **501** for storing information and instructions to be executed by processor **502**. Main memory **504** also may be used for storing temporary variables or other intermediate information during execution of instructions by processor **502**. Computer system **500** also comprises a read only memory (ROM) and/or other static storage device **506** coupled to bus **501** for storing static information and instructions for processor **502**.

A data storage device **507** such as a magnetic disk or optical disc and its corresponding drive may also be coupled to bus **501** for storing information and instructions. Computer system **500** can also be coupled via bus **501** to a display device **521**, such as a cathode ray tube (CRT) or Liquid Crystal Display (LCD), for displaying information to an end user. Typically, an alphanumeric input device **522**, including alphanumeric and other keys, may be coupled to bus **501** for communicating information and/or command selections to processor **502**. Another type of user input device is cursor control **523**, such as a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor **502** and for controlling cursor movement on display **521**.

A communication device **525** is also coupled to bus **501**. Depending upon the particular presentation environment implementation, the communication device **525** may include a modem, a network interface card, or other well-known interface devices, such as those used for coupling to Ethernet, token ring, or other types of physical attachment for purposes of providing a communication link to support a local or wide area network, for example. In any event, in this manner, the computer system **500** may be coupled to a number of clients and/or servers via a conventional network infrastructure, such as a company's Intranet and/or the Internet, for example.

Importantly, the present invention is not limited to having all of the routines located on the same computer system. Rather, individual objects, program elements, or portions thereof may be spread over a distributed network of computer systems. Additionally, it is appreciated that a lesser or more equipped computer system than the example described above may be desirable for certain implementations. Therefore, the configuration of computer system **500** will vary from implementation to implementation depending upon numerous factors, such as price constraints, performance requirements, and/or other circumstances. For example, according to one embodiment of the present invention, a cell phone or a hand held computer may comprise only a processor or a micro controller and a memory, such as a micro code ROM or RAM, for storing static or dynamically loaded instructions and/or data.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A method comprising:

enabling a user to request, via a browser client on a client device, access to a Web page comprising HTML-based content defining an original page layout and design of content on the Web page, the original page layout having a width of at least 800 pixels, the content including a plurality of text objects and image objects; and, in response thereto,

receiving, at the client device, translated content generated by a proxy server associated with the browser client, the translated content generated, in part, via processing the HTML-based content using a rendering engine to interpret the Web page layout and design; and

employing the translated content and/or data derived therefrom via the browser client to,

render a view of at least a portion of the Web page on a display of the client device using a first zoom level;

re-render views of the Web page on the display in response to associated user inputs to enable the user to zoom in and out a view of the Web page on the display using a plurality of zoom levels; and

enable the user to view an entirety of the Web page at each of the plurality of zoom levels by panning views of the Web page when at that zoom level,

wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

receiving the image data associated with the image; and

processing and scaling the image data to re-render a portion of the display occupied by the thumbnail image to replace the thumbnail image with a scaled image.

24. The method of claim **1**, wherein the client device comprises a mobile phone that receives translated content via a mobile service provider network, further comprising performing zooming operations in real-time.

25. The method of claim **1**, wherein the method enables a user to browse billions of Web pages, wherein for each Web page the user is enabled to view an entirety of the Web page at each of a plurality of zoom levels, wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

26. A mobile device, comprising:

processing means;

wireless communications means, to facilitate wireless communication with a network that supports access to the Internet;

display means, to display rendered content; and

storage means, in which a plurality of instructions comprising a browser client are stored,

wherein, upon execution of the instructions by said processing means, the mobile device is enabled to perform operations, including,

rendering a browser interface via which a user is enabled to request to access a Web page comprising HTML-based Web content defining an original page layout and design of content on the Web page, the content including a plurality of text objects and image objects;

receiving translated content generated by a proxy server associated with the browser client, the translated content generated, in part, via processing the HTML-based content using a rendering engine to interpret the Web page layout and design; and

employing the translated content and/or data derived therefrom to,

render a view of at least a portion of the Web page on a display of the client device using a first zoom level;

re-render views of the Web page on the display in response to associated user inputs to enable the user to zoom in and out a view of the Web page on the display means using at least two zoom levels; and

enable the user to view an entirety of the Web page at each zoom level by panning views of the Web page when at that zoom level,

wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

27. The mobile device of claim **26**, wherein the mobile device comprises a mobile phone.

28. The mobile device of claim **26**, wherein the translated content includes scalable content, and wherein the browser client applies a scale factor to the scalable content to produce views of the Web page at a zoom level corresponding to the scale factor.

29. The mobile device of claim **28**, wherein the page layout of the Web page is defined to have an original aspect ratio, and wherein the translated scalable content and/or or data derived therefrom is scaled to render a view having a different aspect ratio.

30. The mobile device of claim **29**, wherein execution of the instructions perform further operations comprising enabling a user to zoom a view of a column of the Web content via an associated user input, wherein in response to the user input, the display is re-rendered such that content corresponding to the column is displayed across the display.

31. The mobile device of claim **30**, wherein the associated user input comprises tapping on content in the column via the display.

32. The mobile device of claim **28**, wherein the translated scalable content includes text content, scalable layout information, and image content, and wherein execution of the instructions perform further operations comprising:

receiving data corresponding to the text content and scalable layout information via a first connection; and

receiving content corresponding to at least one image via a second connection.

33. The mobile device of claim **26**, wherein execution of the instructions performs further operations comprising:

generating a request of the Web page containing indicia indicating the request is to be routed to the proxy server for translation; and

sending the request to one of the proxy server or a service provider gateway via which the request is to be routed to the proxy server.

34. The mobile device of claim **26**, wherein the HTML-based Web content includes at least one hyperlink, and wherein execution of the instructions perform further operations comprising:

enabling the user to select a hyperlink to a second Web page via the browser client; and, in response thereto,

generating a request to access the second Web page and sending the request to the proxy server;

receiving additional translated content from the proxy server corresponding to the second Web page; and

employing the additional translated content and/or data derived therefrom to render a view of the second Web page on the display.

35. The mobile device of claim **26**, wherein the scalable content includes vector-based page layout information.

36. The mobile device of claim **35**, wherein the Web page comprises a plurality of objects comprising at least two of text objects, graphic layout objects, graphic objects and/or image objects, and the translated scalable content includes an object vector and an object bounding box associated with each object and defining a layout location of the object.

37. The mobile device of claim **36**, further comprising dynamic memory having at least a portion employed for rendering purposes, wherein execution of the instructions perform further operations comprising:

mapping the object vectors and associated bounding boxes to a virtual display area in the dynamic memory on the client device; and

employing the object vectors and bounding boxes to layout content on the virtual display area.

38. The mobile device of claim **37**, wherein execution of the instructions perform further operations comprising:

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan corresponding to a rendered view of the Web page desired by a user;

determining a virtual display limit bounding box for the virtual display area associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display limit bounding box; and,

for each of such object bounding boxes,

retrieving object content associated with that object bounding box;

determining an applicable datum offset at which the object content is to be rendered on the display;

determining an applicable scale factor to be employed to render the object content; and

employing the applicable datum offset, the applicable scale factor and the virtual display limit bounding box to render the object content on the display.

39. The mobile device of claim **38**, wherein the virtual display area has a resolution that is independent of a resolution of the display.

40. The mobile device of claim **38**, wherein the virtual display area is associated with a fixed reference frame, and the virtual display limit bounding box is maintained to have a size matching the resolution of the content display area defined for the display by the browser client.

41. The mobile device of claim **26**, wherein the translated content includes a plurality of text objects, each text object including text associated with the object, a typefont and size for the text, and scalable layout information used for laying out the text on a scaled page layout, and wherein execution of the instructions perform further operations comprising:

determining a layout location of a text object on a to be rendered page view;

determining an applicable scale factor to be applied to render the text; and

applying the scale factor to a scalable typefont corresponding to the typefont of the text.

42. The mobile device of claim **26**, wherein execution of the instructions perform further operations comprising:

enabling the user to select an area of the Web page view to zoom in on via an associated user input; and

in response thereto,

re-rendering the display such that content in the selected area is rendered substantially across at least one of a width and a height of the display.

43. The mobile device of claim **26**, wherein execution of the instructions perform further operations comprising enabling the user to pan a view of the Web page substantially in real-time.

44. The mobile device of claim **26**, wherein the Web content includes at least one image, and wherein execution of the instructions perform further operations comprising enabling a user to zoom on an image via an associated user input, wherein in response to the user input, the display is re-rendered such that the image is displayed substantially across at least one of a width and height of the display.

45. The mobile device of claim **44**, wherein the associated user input comprises tapping on the image via the display.

46. The mobile device of claim **26**, wherein execution of the instructions perform further operations comprising enabling a user to view text content in a paragraph of the Web content at a greater resolution than a current resolution via an associated user input, wherein in response to the user input, the display is re-rendered such that content corresponding to the selected paragraph is enlarged.

47. The mobile device of claim **46**, wherein the content of the paragraph is reformatted to fit characteristics of the display when the display is re-rendered.

48. The mobile device of claim **26**, wherein the translated content includes translated image content comprising image thumbnail data and image data corresponding to one of an original or compressed image content, and wherein execution of the instructions perform further operations comprising:

receiving image thumbnail data for an image;

rendering the image thumbnail on the display;

receiving the image data associated with the image; and

processing and scaling the image data to re-render a portion of the display occupied by the thumbnail image to replace the thumbnail image with a scaled image.

49. The mobile device of claim **1**, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

50. The mobile device of claim **26**, wherein the processing means includes programmed circuitry that is employed to perform at least a portion of the operations.

51. The mobile device of claim **26**, wherein the mobile device comprises a mobile phone and the network comprises a mobile service provider network, and wherein execution of the instructions performs zooming operations in real-time.

52. The mobile device of claim **26**, wherein execution of the instructions enables a user to browse billions of Web pages, wherein for each Web page the user is enabled to view an entirety of the Web page at each of a plurality of zoom levels, wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

53. A tangible non-transitory machine-readable medium having stored thereon a plurality of instructions comprising a browser client that when executed by a mobile hand-held device having a display performs operations comprising:

rendering a browser interface via which a user is enabled to request to access a Web page comprising HTML-based Web content defining an original page layout and design of content on the Web page, the content including a plurality of text objects and image objects;

receiving translated content generated by a proxy server associated with the browser client, the translated content generated, in part, via processing the HTML-based content using a rendering engine to interpret the Web page layout and design; and

employing the translated content and/or data derived therefrom to,

render a view of at least a portion of the Web page on a display of the mobile hand-held device using a first zoom level;

re-render views of the Web page on the display in response to associated user inputs to enable the user to zoom in and out a view of the Web page on the display using at plurality of zoom levels; and

enable the user to view an entirety of the Web page at each of the plurality of zoom levels by panning views of the Web page when at that zoom level,

wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

54. The machine-readable medium of claim **53**, wherein the mobile device comprises a mobile phone.

55. The machine-readable medium of claim **53**, wherein the translated content includes scalable content, and wherein the browser client applies a scale factor to the scalable content to produce views of the Web page using a zoom level corresponding to the scale factor.

56. The machine-readable medium of claim **55**, wherein the scalable content includes vector-based page layout information.

57. The machine-readable medium of claim **56**, wherein the Web page comprises a plurality of objects comprising at least two of text objects, graphic layout objects, graphic objects and/or image objects, and the translated scalable con-

75. The machine-readable medium of claim 53, wherein the translated content includes translated image content comprising image thumbnail data and image data corresponding to one of an original or compressed image content, and wherein execution of the instructions perform further operations comprising:

receiving image thumbnail data for an image;

rendering the image thumbnail on the display;

receiving the image data associated with the image; and

processing and scaling the image data to re-render a portion of the display occupied by the thumbnail image to replace the thumbnail image with a scaled image.

76. The machine-readable medium of claim 53, further comprising:

generating a display list derived, at least in part, via use of the translated content; and

employing the display list to render views of the Web page.

77. The machine-readable medium of claim 53, wherein at least a portion of the instructions comprise Java-based instructions configured to be executed on a Java virtual machine.

78. The machine-readable medium of claim 53, wherein the mobile hand-held device comprises a mobile phone and the translated content is received via a mobile service provider network, and wherein execution of the instructions performs zooming operations in real-time.

79. The machine-readable medium of claim 53, wherein execution of the instructions enables a user to browse billions of Web pages, wherein for each Web page the user is enabled to view an entirety of the Web page at each of a plurality of zoom levels, wherein the original page layout and design, as interpreted by the rendering engine, is preserved at each zoom level, and wherein the user is enabled to view a full width of the Web page at least one zoom level.

80. A device comprising:

communications means for enabling the device to be linked to a network that supports access to the Internet;

display means;

means for enabling a user to request access to a Web page comprising HTML-based content defining an original page layout and design of content on the Web page, the content including a plurality of text objects and image objects;

means for receiving translated scalable content comprising a scalable representation of the Web page, said translated scalable content supporting a scalable resolution-independent display of the Web page that substantially preserves the original page layout and design of the Web page content when it is rendered by the device;

means for rendering a first view of the Web page on the display means via use of the translated scalable content using a first scaling factor;

means for enabling a user to zoom in and out views of the Web page on the display means and pan views of the Web page, wherein the original page layout and design of the Web page content is preserved at each of multiple zoom levels and the user is enabled to view an entirety of the Web page content corresponding to the HTML-based content at each zoom level.

81. The device of claim 80, further comprising:

means for enabling a user of the device to select an area of the Web page to zoom in on, and in response thereto, re-rendering the view of the Web page to enlarge the selected area.

82. The device of claim 80, further comprising:

means for enabling a user to zoom on a column of the Web page via an associated user input, wherein in response to the user input, the display means is re-rendered such that content corresponding to the column is displayed substantially across the display means.

83. The device of claim 80, further comprising:

means for enabling a user to zoom on an image in the Web content via an associated user input, wherein in response to the user input, the display means is re-rendered such that image is displayed substantially across the display means.

84. The device of claim 80, wherein the device comprises a mobile device, and the communication means includes a wireless transceiver to enable the device to be linked to the network via a wireless link.

85. The device of claim 80, wherein the translated scalable content includes scalable vector-based page layout information.

86. The device of claim 80, further comprising means for generating a scalable display list via use of the translated scalable content, wherein the scalable display list content is configured to be scaled to render the Web page at different scale factors.

* * * * *

Exhibit 3J

US008145995B2

(12) **United States Patent**
Rohrabaugh et al.

(10) **Patent No.: US 8,145,995 B2**
(45) **Date of Patent: *Mar. 27, 2012**

(54) **SCALABLE DISPLAY OF INTERNET CONTENT ON MOBILE DEVICES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 412 days.

This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

(63) Continuation of application No. 09/878,097, filed on Jun. 8, 2001, now Pat. No. 7,210,099, which is a continuation-in-part of application No. 09/828,511, filed on Apr. 7, 2001, now abandoned.

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(51) **Int. Cl.**
G06F 17/00 (2006.01)

(52) **U.S. Cl.** **715/249**; 715/800

(58) **Field of Classification Search** 715/249, 715/200, 205, 235, 800, 825

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,615,384	A	3/1997	Allard et al.
5,897,644	A	4/1999	Nielsen
5,920,327	A	7/1999	Seidensticker, Jr.
5,952,994	A	9/1999	Ong et al.
5,956,025	A	9/1999	Goulden et al.
5,966,135	A	10/1999	Roy et al.
5,987,256	A	11/1999	Wu et al.
6,003,046	A	12/1999	Nielsen

(Continued)

FOREIGN PATENT DOCUMENTS

AU	761635	5/2001

(Continued)

OTHER PUBLICATIONS

Benjamin B Bederson et al.,(Pad++ Sep. 19, 1995 pp. 1-30).*

(Continued)

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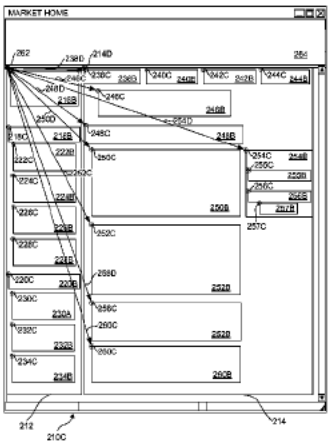
(57) **ABSTRACT**

Mobile devices enabled to support resolution-independent scalable display of Internet (Web) content to allow Web pages to be scaled (zoomed) and panned for better viewing on smaller screen sizes. The mobile devices employ software-based processing of original Web content, including HTML-based content, XML, cascade style sheets, etc. to enable Web page content to be rapidly rendered, zoomed, and panned. Moreover, the rendered displays provide substantially the same or identical layout as the original Web page, enabling users to easily navigate to selected content and features on literally Billions of Web pages. User input schemes include tap-based context zooming that enables users to selectively zoom in on objects including columns, images, and paragraphs by simply tapping on them. Display lists may also be employed to provide further enhancements in rendering speed. Additionally, hardware-based programmed logic may be employed to facilitate various operations.

14 Claims, 22 Drawing Sheets



Motorola PX 1019a_562

many TRUETYPE™ fonts are available, which use a common scalable definition for each font, enabling those fonts to be scaled to just about any size. In other cases, such as current PDA (e.g., Palm Pilots) operating systems, there is no existing feature that supports scaling fonts. As a result, bitmapped fonts of different font sizes and styles may be used. In addition to scaling image and text content, other types of content, such as separator lines and borders may also be scaled by block **170**.

The process is completed in a block **172**, wherein those portions of the scaled content falling within the display limit bounding box are rendered on the client device's display.

As discussed above, it is foreseen that the invention will be used with client devices having small, low resolution displays, such as PDAs and pocket PCs. Examples of various views of an exemplary web pages obtained from the YAHOO™ web site are shown in FIGS. **7**A-B, **8**A-B and **9**A-B. For instance, FIG. **7**A represents how the YAHOO™ home page might appear on a Palm IIIc color PDA.

In addition to directly scaling and offsetting content, the client user-interface software for PDA's provides additional functionality. For instance, a user may select to view a column (results represented in FIG. **7**B by tapping that column with a stylus, a shown in FIG. **7**A. Similarly, the user may select to zoom in on an image by tapping the image with the stylus, as shown in FIGS. **8**A and **8**B, or select to view a paragraph in an article by tapping on the paragraph, as shown in FIGS. **9**A and **9**B. It is noted that in some instances, the display of the paragraph may be reformatted to fit the characteristics of the display, rather than following the original format in the zoom-out view.

It is further noted that that different scaling factors can be applied to the X and Y axis so as to change the aspect ratio of the display. For example, a Web page may be designed to be displayed on a computer having a resolution of 800×600 pixels, or a 4X to 3Y aspect ratio. In this case, the display corresponds to a "landscape" layout, wherein there are more pixels along the X axis than along the Y axis. Conversely, many handheld devices display images having a "portrait" layout, wherein there are more pixels along the Y axis than the X axis. By enabling different scaling factors to be applied to the X and Y axes, the present invention enables the aspect ratio of a rendered display image to be adjusted to better fit the aspect ratio of the client device.

An Exemplary Computer Architecture

An exemplary machine in the form of a computer system **500** in which features of the present invention may be implemented will now be described with reference to FIG. **10**. Computer system **500** may represent a workstation, host, server, print server, or printer controller. Computer system **500** comprises a bus or other communication means **501** for communicating information, and a processing means such as processor **502** coupled with bus **501** for processing information. Computer system **500** further comprises a random access memory (RAM) or other dynamic storage device **504** (referred to as main memory), coupled to bus **501** for storing information and instructions to be executed by processor **502**. Main memory **504** also may be used for storing temporary variables or other intermediate information during execution of instructions by processor **502**. Computer system **500** also comprises a read only memory (ROM) and/or other static storage device **506** coupled to bus **501** for storing static information and instructions for processor **502**.

A data storage device **507** such as a magnetic disk or optical disc and its corresponding drive may also be coupled to bus **501** for storing information and instructions. Computer system **500** can also be coupled via bus **501** to a display device **521**, such as a cathode ray tube (CRT) or Liquid Crystal Display (LCD), for displaying information to an end user. Typically, an alphanumeric input device **522**, including alphanumeric and other keys, may be coupled to bus **501** for communicating information and/or command selections to processor **502**. Another type of user input device is cursor control **523**, such as a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor **502** and for controlling cursor movement on display **521**.

A communication device **525** is also coupled to bus **501**. Depending upon the particular presentation environment implementation, the communication device **525** may include a modem, a network interface card, or other well-known interface devices, such as those used for coupling to Ethernet, token ring, or other types of physical attachment for purposes of providing a communication link to support a local or wide area network, for example. In any event, in this manner, the computer system **500** may be coupled to a number of clients and/or servers via a conventional network infrastructure, such as a company's Intranet and/or the Internet, for example.

Importantly, the present invention is not limited to having all of the routines located on the same computer system. Rather, individual objects, program elements, or portions thereof may be spread over a distributed network of computer systems. Additionally, it is appreciated that a lesser or more equipped computer system than the example described above may be desirable for certain implementations. Therefore, the configuration of computer system **500** will vary from implementation to implementation depending upon numerous factors, such as price constraints, performance requirements, and/or other circumstances. For example, according to one embodiment of the present invention, a cell phone or a hand held computer may comprise only a processor or a micro controller and a memory, such as a micro code ROM or RAM, for storing static or dynamically loaded instructions and/or data.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A mobile device, comprising:

a processor,

a wireless communications interface, to facilitate wireless communication with a network that supports access to the Internet;

a display; and

memory, operatively coupled to the processor, in which software comprising a browser is stored, the browser comprising a plurality of instructions that when executed by the processor enable the device to perform operations including, rendering a browser interface on the display via which a user is enabled to request access to Web pages accessible via the World Wide Web, wherein each Web page comprises HTML-based Web page content defining an original page layout, functionality, and design of the Web page content, the browser interface including a browser content display area in which views of the Web page are rendered;

for each Web page for which access is requested, retrieving the Web page via the wireless communications interface; and enabling the user to browse, zoom and pan

views of the Web page while preserving the original page layout, functionality, and design of the HTML-based Web page content;

in response to a request to access a Web page including at least one image, at least one column, and at least one paragraph and having a width and height, retrieving the Web page via the wireless communications interface;

rendering the Web page on the display wherein the width of the Web page fits a width of the browser content display area; and

enabling the user to,

zoom and pan views of the Web page in response to corresponding user inputs made via the display;

zoom in on an image located on a portion of the Web page by tapping on the image via the display;

zoom in on a column of the Web page by tapping on the column via the display;

zoom in on a paragraph of the Web page by tapping on the paragraph via the display; and zoom out to a previous view of the Web page.

2. The mobile device of claim **1**, wherein the display of the Web page is re-rendered in real-time to effect zooming operations.

3. The mobile device of claim **1**, zooming in on an image results in a zoomed-in view of the Web page under which a width of the column fits a width of the browser content display area.

4. The mobile device of claim **3**, wherein in the zoomed-in view of the Web page the image is centered horizontally and spans across the browser content display area.

5. The mobile device of claim **1**, wherein zooming in on a column results in a zoomed-in view of the Web page under which a width of the column fits a width of the display browser content display area.

6. The mobile device of claim **5**, wherein in the zoomed-in view of the Web page the column is centered horizontally and spans across the browser content display area.

7. The mobile device of claim **1**, wherein zooming in on a paragraph results in a zoomed-in view of the Web page under which a width of text content of the paragraph fits a width of the browser content display area.

8. The mobile device of claim **1**, wherein the mobile device comprises a mobile phone.

9. The mobile device of claim **1**, wherein the mobile device comprises a hand-held device.

10. The mobile device of claim **1**, wherein zooming in on an image results in a zoom level and offset of the Web page view being updated such that the image is enlarged and centered horizontally within the browser content display area.

11. The mobile device of claim **1**, wherein zooming in on a column results in a zoom level and offset of the Web page view being updated such that the column is enlarged and centered horizontally within the browser content display area.

12. The mobile device of claim **1**, wherein zooming in on a paragraph results in a zoom level and offset of the Web page view being updated such that text content of the paragraph is enlarged and centered horizontally within the browser content display area.

13. A non-transitory machine-readable medium having a plurality of instructions tangibly stored thereon comprising a browser, which when executed by a processor of a mobile device performs operations comprising:

rendering a browser interface on a display of the mobile device via which a user is enabled to request access to Web pages accessible via the World Wide Web, wherein each Web page comprises HTML-based Web page content defining an original page layout, functionality, and design of the Web page content, and the browser interface including a browser content display area in which views of the Web page are rendered;

for each Web page for which access is requested, retrieving the Web page via the wireless communications interface; and

enabling the user to browse, zoom and pan views of the Web page while preserving the original page layout, functionality, and design of the HTML-based Web page content;

in response to a request to access a Web page including at least one image, at least one column, and at least one paragraph and having a width, retrieving the Web page via the wireless communications interface; and

rendering the Web page on the display wherein the width of the Web page fits a width of the browser content display area; and enabling the user to zoom and pan views of the Web page in response to corresponding user inputs made via the display; and

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan corresponding to a rendered display of the Web page desired by a user; determining a virtual display bounding box for the virtual display associated with the first scale factor and offset; identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and, for each of such object bounding boxes, retrieving content associated with that object bounding box; scaling the content associated with that object bounding box to produce scaled content; and

rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

14. A method comprising:

rendering a browser interface on a display of a mobile device via which a user is enabled to request access to Web pages accessible via the World Wide Web, wherein each Web page comprises HTML-based Web page content defining an original page layout, functionality, and design of the Web page content, the browser interface including a browser content display area in which views of the Web page are rendered;

for each Web page for which access is requested, retrieving the Web page via the wireless communications interface; and enabling the user to browse, zoom and pan views of the Web page while preserving the original page layout, functionality, and design of the HTML-based Web page content;

in response to a request to access a Web page including at least one image, at least one column, and at least one paragraph and having a width, retrieving the Web page via the wireless communications interface; and

rendering the Web page on the display wherein the width of the Web page fits a width of the browser content display area; and

enabling the user to zoom and pan views of the Web page in response to corresponding user inputs made via the display; and

determining a first scale factor and offset in response to one or more corresponding user inputs defining a user-selectable zoom level and pan corresponding to a rendered display of the Web page desired by a user; determining a virtual display bounding box for the virtual display associated with the first scale factor and offset;

identifying object bounding boxes having at least a portion falling within the virtual display bounding box; and, for each of such object bounding boxes, retrieving content associated with that object bounding box; scaling the content associated with that object bounding box to produce scaled content; and rendering the portion of scaled content within the virtual display bounding box to render the content on the display.

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